

Creationists vs. Evolutionists: The Debate Heats Up

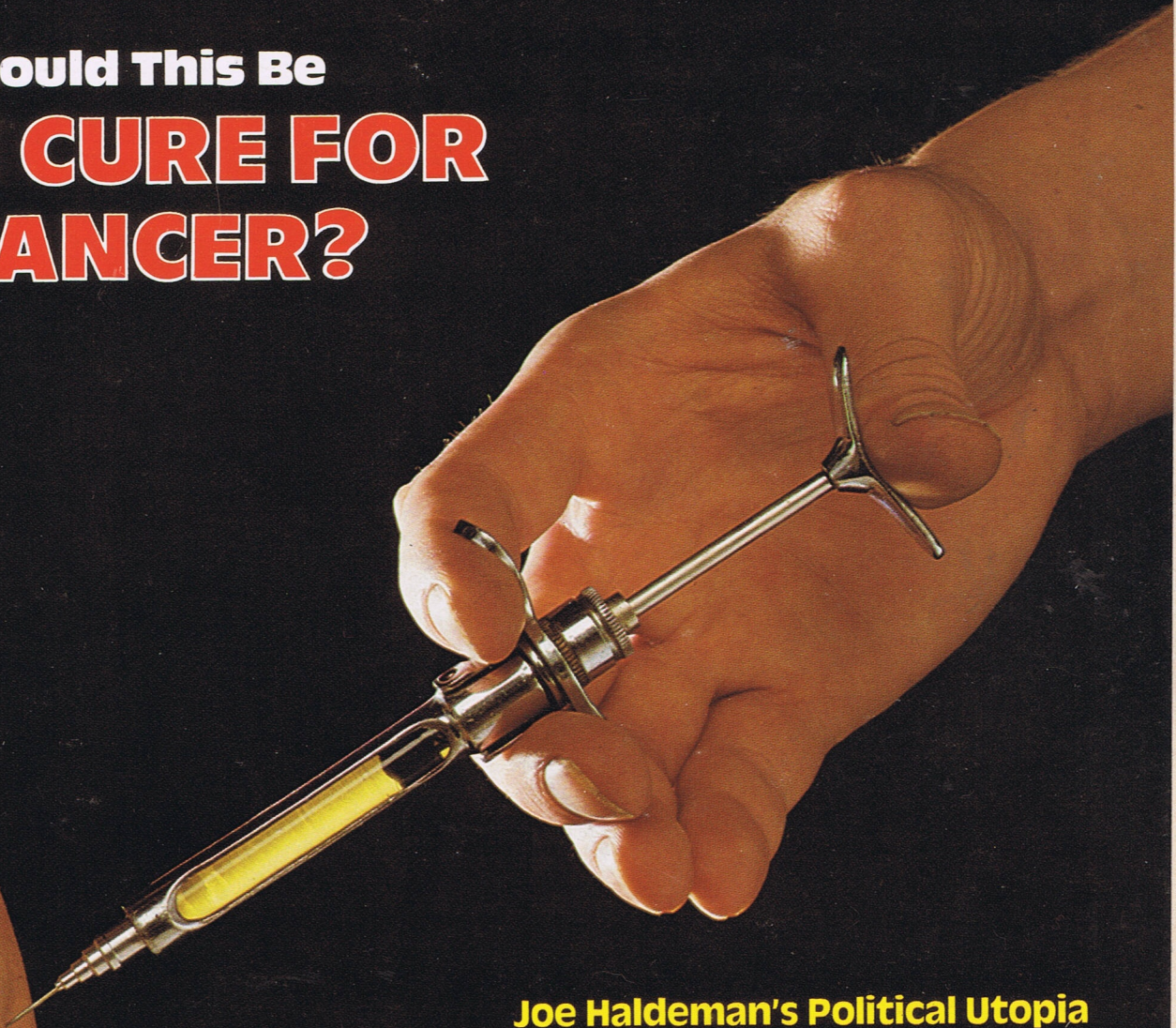
FUTURE

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SEPTEMBER 1981

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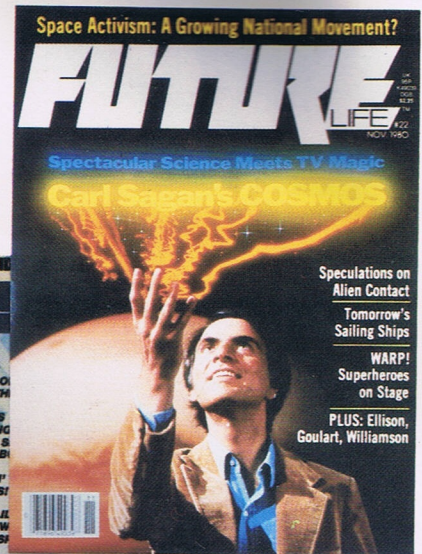
That's not just a startling headline—it's the truth. FUTURE LIFE is no longer available on newsstands. Starting with issue #24 (published in December) the original magazine of tomorrow is sold by subscription only.

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#29 September 1981



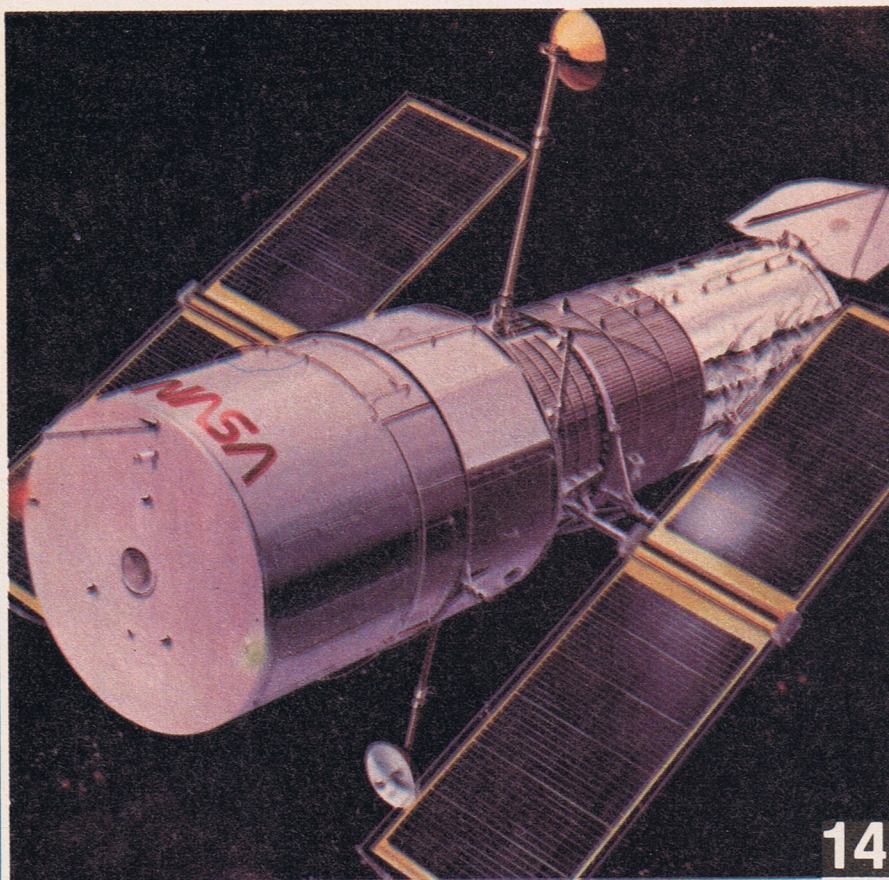
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ON THE COVER: Scientists are trying to discover whether a new drug called interferon can be the deciding factor in the war against cancer. For the full story, turn to page 64. Cover: © 1981 Michael Sullivan.

output

The FUTURE LIFE Philosophy Part IV: "Scientific Progress"

Obviously this is a pro-science magazine, and I am sure that 99 percent of our readers share that attitude. But supporting scientific progress is not that simple. When we get into specific cases, many a good futurist will jump to the other side of the fence—often with what seem like very good reasons.

So, let me state what scientific progress does *not* include, rather than rhapsodize on the glorious wonders that it *does* produce.

Progress—in any field—does not include mere forward rushing.

For instance, it does *not* include placing a beneficial new drug on the open market when the long-range consequences have not been established; it does *not* include building an important research center on 50 acres of land where the remaining examples of an endangered species are living; it does *not* include operating valuable manufacturing facilities in a way that pollutes the air and water nearby.

To be *real*, progress must be tempered with thoughtful consideration of all the consequences—and often the solutions to many *accompanying problems* must be devised before a practical plan of action can be put in the works.

But let's be more specific: these practical action problems are not really the issues of science. They are the province of technology and commerce—i.e. the use of scientific research in commercial or working forms. These theoretical implementations are not the prime concern of science.

Scientists have one goal in life: discovery! They look at the world with a lust for knowledge—a lust that is never completely satisfied. To a scientist, progress is not a new bottle of pills on a drug store shelf—it is the earlier discovery of how a certain combination of chemicals will work in the human body to achieve a specific reaction.

Scientific progress is, in short, *learning*. It's as fundamental and inescapable to the entire human species as the sense organs and brain that make the whole process possible. To twist an old phrase, life is equivalent to "I am human, therefore I think."

At its most basic root, scientific progress is the natural process of the human mind—looking at and learning about the world we live in. It does not involve whether a particular discovery should be mass-utilized in a certain way. Those questions are debatable, but the quest for knowledge—the desirability of searching—the insatiable activity of human thought, is not debatable.

This concludes our four-part series explaining the fundamentals for which FUTURE LIFE stands and why these positions are inarguable essentials for an improved future.

The three planks of our philosophy—Free Enterprise, Individual Liberty and Scientific Progress—are interrelated and are all direct outgrowths of the nature of being human.

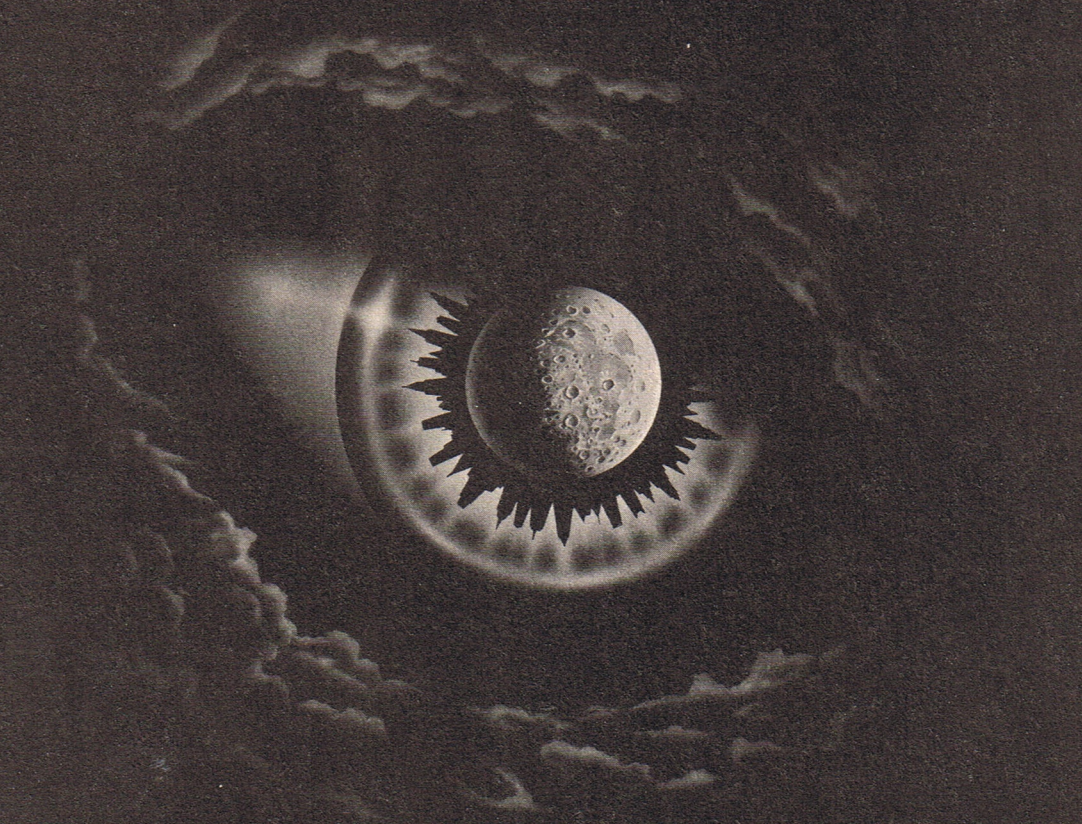
Scientific Progress is the individual mind exploring as its nature requires. Individual Liberty is the self-directed human mind—operating without compulsion. Free Enterprise is the mind directing actions into a social context, for its own benefit.

Much as these are requirements for our future, they have *always* been what improving the lot of humanity required. To the extent that these conditions have existed in our past, that is precisely how fast we have moved from the jungles and caves to the skyscrapers and spaceships of our present.

Kerry O'Quinn/Publisher

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**They can hear a cloud pass overhead,
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OPENS JULY 24

Because of the large volume of mail we receive, personal replies are impossible. Comments, questions and suggestions are appreciated, however, and those of general interest may be selected for publication in future issues. Write:

FUTURE LIFE Input
475 Park Ave. South
8th Floor Suite
New York, NY 10016

MEETING HUMAN NEEDS

...Response to Kerry O'Quinn's Output column "Reaching for the Stars" (FUTURE LIFE #25) evidences two extremes—the view which Ayn Rand popularized, that social compassion is immoral; and the view which Karl Marx popularized, that anything other than social compassion is immoral. There is a middle view, obviously the one taken by the majority of your respondents.

Obviously individuals must be restrained from hurting others by laws and an enforcement system, human nature being what it is. By the same token, large organizations must be similarly restrained, for the same reason. If it were not for the Sherman Antitrust Act, the corporations would crush us. If it were not for the Taft-Hartley Act, the unions would crush us.

But at the same time, we must perceive reality sanely and recognize that human ideals can only be attained through human endeavor. The free enterprise system, with its profit-motivated individuals and profit-motivated corporations, represents the most effective means for pursuing human endeavors ever devised. In the acid test of competition with other systems in the real world, it comes out far ahead.

The only way we can get to the point where our economy is able to support such an expensive proposition as national guaranteed health care is for us to expand our wealth-producing industry out into space. Once there, it will cause our economy to grow literally astronomically. One good-sized metallic asteroid towed into Earth orbit and utilized by industry could double the U.S. gross national product. At that level of economic strength, we could afford a national guaranteed health care program, and perhaps other things as well.

Only in space does the impossible become possible. Only in space can we solve the problems of Earth. If we ever attain paradise, it will be free enterprise that builds it. To gain sufficient resources to do this, free enterprise must move into space.

Thus, the very best expression of social compassion is to encourage free enterprise to enter space. This is the fastest, most direct, and most effective means there is for meeting human needs.

Ronald R. Lambert
Troy, MI

IN THE BEGINNING . . .

...Although George Olshevsky's letters (An Edge in My Voice, FUTURE LIFE #27) provide a splendid scientific and philosophic response to the creationist line, the "man (and woman) on the street" tends to dismiss detailed analysis with the generalized observation "I don't see any harm in letting the kids hear both sides of the story."

This seemingly innocuous statement fails to recognize that the insertion of a literal, fundamentalist interpretation of Genesis into science instruction would harm religion as much as science.

Critical scientific examination of the Bible under the leadership of teachers who are trained in science, not religion, would denigrate the deep moral and spiritual values of Holy Scripture. At the same time, viewing scientific explanations as deviation from inerrant religious dogma would lead to suppression of free scientific inquiry and a return to the days of Galileo and Bruno.



PHOTO © 1981 UNITED ARTISTS

Contrasting religion with scientific theory is not the role of the science teacher. Students may be informed, however, that there are supernatural accounts outside the domain of the cause-and-effect relationships known as natural law. The religious beliefs of students in our pluralistic society should be respected. Students who ask questions in science classes related to scripture, revelation and the supernatural, and the relationship between religious and scientific explanations should be directed to their parents or their religious advisors. Science teachers are certified to teach science, not religion.

David Kraus
Former Chairman, Science Dept.
Far Rockaway High School
New York, NY

...In the FUTURE LIFE #27 Input section I noticed that Derek Stevenson of St. Catharines, Ont., Canada, said that evolution is "a fact and not theory." This surprises

me that someone so interested in preserving science would be so close-minded and not have a true scientific attitude. The right attitude in this case would be to work with what you have but always keep an open mind toward new and better theories that will fit the same evidence. Even Carl Sagan pointed out on the *Tonight Show* that one has to be careful when making definite statements about science because one can never know what breakthroughs lie ahead. So I urge Mr. Stevenson and Mr. Sagan to change their status on evolution from "fact" to "a damn good theory," and to keep an open mind for better theories (and they don't have to be creation theories). Only then will we be able to step closer to the truth.

Joe Durnavich
Harvey, IL

...After reading An Edge In My Voice (FUTURE LIFE #27), I find myself in 100 percent agreement with Mr. Ellison and Dr. Olshevsky. It worries me that intelligent adults will accept the garbage being promoted as "a scientific and viable alternative to evolution." Creationism is crap and the so-called Moral Majority is full of it. I had been aware that the Moral Majority had played a major role in the last election, but as a resident in the only state without a branch office of the Moral Majority (as an item of interest, there is a local organization called that but they are being brought to court by the real Moral Majority as our version promotes gay rights and other idiocies such as science, reason, the right to an abortion, full rights for all—even women and minorities—and many other perversions of man), I had not been exposed to their brand of logic before. It's the same sort of thinking that anti-gun advocates utilize, wishful thinking (i.e. take away all guns and violent crime will—magically—vanish).

John Wagner
Wahiawa, HI

...Mr. Stevenson is wrong (Input, FUTURE LIFE #27). There is at least one regular reader of FUTURE LIFE that believes in creation—myself. I am not a member of Moral Majority or any such group, and am in fact vehemently opposed to such groups (I didn't even vote for Reagan). I believe in free speech, and in following your own conscience without blindly obeying a supposed authority.

I was not raised fundamental and was indeed taught that evolution was a fact. However, even its staunchest defenders still refer to the *theory* of evolution. I am a creationist; I am not anti-science, not anti-space, not anti-reason. I just believe life had a different beginning.

Fight for your beliefs. Fight against the actions of others that you are against. But please, don't fight against the beliefs of

others. People have the right to believe in what they want, especially if it is not blind belief.

Diane Zimmerman
Toledo, OH

... If an avowed atheist may be allowed to use such a religiously derived word, I'd like to say—loud & clear—"Hallelujah!" to Harlan Ellison for his column in FUTURE LIFE #27 and also to George Olshevsky for his incisive letters to the San Diego *Evening Tribune* and his refusal to let the creationist cretins get away with their pernicious nonsense.

If I didn't have such a low opinion of the general American public, I'd be amazed at the complacency with which these religious Gestapo thugs have been met. With its usual mental quickness and its typical timing on important matters (i.e. a day late & a dollar short), we'll be a theocracy before anything pertinent is done to counteract the Moral Majority syndrome.

Theocracies have historically been anti-progress, anti-personal liberty and (I can't think why) anti-atheist. I'd hate to think that America could sink so low as to become one. As long as there are people who are courageous enough to stand up to these goofs, just so long will the curtain of the Second Dark Ages be held back. If you think the space program is having problems *now*, wait until its most progressive technology is limited to prayer and faith!

Christine L. Oleynichak
Burbank, IL

... I find it insane to pit the Bible on one side of an argument and put science on the other. God is the author and creator of both of these and a true study of science will always lead to a deeper appreciation of God's glory and power.

Ted Apelt
Miami, FL

SKY ANGLE

... Re: "Inside Uranus' Rings" painted by Ron Miller in FUTURE LIFE #27. ...

I hate to do this to your space art advisor; but based on what I had heard about Uranus' rings, it would seem to me that in Mr. Miller's painting either the rings or the angle of the sun (take your pick) are 90 degrees off! Sorry, Ron!

Mitchell Allen
Woburn, MA

WHAT'S IN A NAME?

... In your "Plutomania" article (FUTURE LIFE #27) you asked for suggestions about the name of a possible tenth planet beyond Pluto.

How about Tartarus? In some of Greek-Roman mythology, Tartarus was the lowest

region of the afterlife underworld kingdom of the god Pluto (the Greek Hades). It was usually represented as a place of punishment, as opposed to the higher regions of the plains of Asphodel (neutral existence) and Elysium (paradise).

The name is thus in the Greek-Roman tradition (although it is the name of a place, not of a god or goddess), and might indicate a world even further away in the depths of space than the planet Pluto.

John Lockwood
Washington, D.C.

DEFENDING THE CHURCH

... In his editorial "Free Enterprise" (FUTURE LIFE #27) Mr. O'Quinn repeats the hoary myth that the Dark Ages were caused by the Christian Church which kept people from thinking and acting for themselves. Presumably were it not for the Church the fall of Rome would have been quickly followed by a second Periclean Age among the forests of Germany or the sacked cities of Gaul.

The truth is that after the destruction of the Roman Army of Adrianople and until the crusades Europe was under a state of siege, from the pagan Vikings in the North, from the forces of Islam in the South and from successive waves of Tartars and Monguls in the East. A society fighting for its life amid the ruins of a collapsed civilization has little time for intellectual speculation or political and economic reform.

The only unifying factor in this time of troubles was the Christian Church which supplied the educational forces that preserved the knowledge of the past and the moral authority that made the law more powerful than brute force. An even more priceless gift of the Church was the concept of Free Will. For the first time man was told that he was not born the slave of assorted gods and goddesses or demons or an implacable preordained fate. He was free to choose and to decide his own fate.

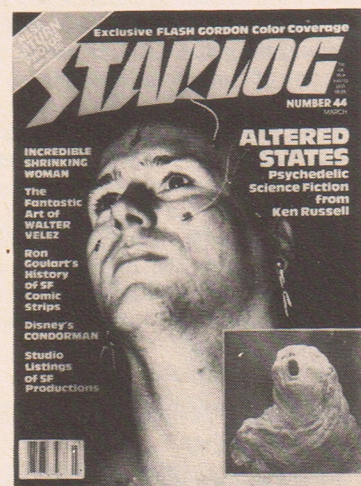
The Renaissance and the Enlightenment could not have occurred without the libraries and universities founded by the Church and by the works of the past collected and saved by men like Benedict and the Irish monks. Like Masfield's mercenaries, "When Earth's foundations fled, they saved the sum of things."

Thomas J. Mullen, Jr.
Whitehouse Station, NJ

CAMELS AND THE KORAN

... After reading your interview with Roger Zelazny in FUTURE LIFE #25, I would like to point out a statement where he said, "Nowhere in the Koran does Mohammed mention camels. Everybody knew what a camel was. There are any number of writers..." etc. The totally erroneous statement made by Roger Zelazny is the result of ignorance and

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of systematic denigration. And the most serious untruth he claimed about the Koran is judging that which is dealing with facts. For, while mistaken opinions are excusable, the presentation of facts running contrary to the reality is not.

There are more than a dozen places where the word "camel" or "camels" is scattered throughout the Koran. And if he had in mind that Mohammed wrote the Koran then he must remember that Mohammed was illiterate. Whenever a fragment of the Koran was revealed to him by the Archangel Gabriel, the Prophet called one of his literate companions and dictated it to him.

Faiz Mansour Awadh
Jeddah, Saudi Arabia

A NEW "IST"

... I've just sent a postcard to Harlan Ellison, applauding his "Edgy Voice" comments, especially about zombies who become engrossed with trivia when it's so much more rewarding to *do something* that has an impact on our destiny.

Reading the "Editor's Note" at the end of Ellison's column, I commend any magazine which gives a "free hand" to expression of opinions, regardless of whose toes are stepped on! A no-strings-attached policy generates relevant dialogue which expands

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our minds and sets our think-wheels turning.

FUTURE LIFE magazine accomplished that, and I'm stimulated, surprised and overjoyed. Thanks! My 22-year-old grandson is an SF fan. That's how this 73-year-old feminist, environmentalist, pacifist, activist became exposed to your magazine. Kudos! Now I'm also a futurist.

Doris V. Mendes
Omaha Gray Panthers
Omaha, NE

LETTER CAMPAIGN

... The Campaign for Space Political Action Committee is coordinating a nation-wide letter writing campaign to the President and members of the Congress to coincide with the second flight of the space shuttle. *Columbia's* second launch is tentatively scheduled for September 30, 1981. Space supporters across the country can demonstrate their support for an expanded U.S. space program by sending the message to Washington that the American people are behind a strong civilian space effort. Hundreds of thousands of letters from hundreds of thousands of individuals will demonstrate the broad based nature of the space constituency and will send a signal to our leaders that cannot be ignored.

For more information on how you can participate write: The Campaign For Space Political Action Committee P.O. Box 1526 Bainbridge, GA 31717.

Thomas J. Frieling
Campaign for Space

BLASTING BUNK

... Despite Harlan Ellison's blast at the pseudosciences and irrational causes, and Kerry O'Quinn's "mental slavery" editorial, there appears to be FUTURE LIFE readers who still cling to the gospels of confusion. And why not when the magazine itself gives space to cranks and UFO-infatuated artists? To cite one specific instance, Barbara Krasnoff's "Designing for Space" article

(FUTURE LIFE #27), dealing with Bob Schimel's lunatic space habitat concept, injected only the slightest note of skepticism when the course of discussion entered the realm of psychic energy and psionic generators. A casual or uninformed reader might think that such things were scientifically plausible when in fact there is not the least bit of evidence to substantiate the kind of mental energies Schimel wants to utilize. Bunk like this lends ammunition to Proxmire and his ilk in their efforts to discredit the space constituency as a body of duped, gullible fools who would latch on to the most outlandish of ideas if it promised manna from heaven.

Why doesn't FUTURE LIFE put aside or leave to the paranormal-devoted periodicals topics like the Jupiter Effect, flying saucers, pyramidology, psi, *ad nauseum*, or at least present the skeptical side for balance? I think FUTURE LIFE could stand an enhancement in credibility and respect, especially in the scientific community, by refraining to publish pieces that do not have solid technical backing. You'll be doing your bit against the profusion of mysticism and irrationality while promoting the effectiveness of science as a valuable tool—you know, the methodology that told us the Earth wasn't flat and didn't inhabit the center of the universe?

Fern Machlen
Gillspond, ID

SPACE STRIKE

... If Carolyn Henson is still accepting suggestions I have one. Space enthusiasts might do well to begin a "hunger strike" in protest of the \$100 billion MX missile system and more nuclear arms. The tax dollars saved should be spent on a humanitarian space project such as an Earth-orbiting geriatric health care facility and retirement village. Human beings should make war on outer-space... not on each other.

Paul F. Justus
Mission, KS



"...and here we have a *perfect* example of carelessness in the lab."

database

SHUTTLEIN' ALONG

FROM WASHINGTON TO WALL STREET

Now that they've touched ground, *Columbia* astronauts John W. Young and Navy Capt. Robert L. Crippen are shuttling across the United States making guest appearances and receiving kudos from all sectors of government and business.

On June 1 they joined the New York Society of Security Analysts and the Financial Analysts Federation at the World Trade Center for a discussion of the commercial potentials of the shuttle. The program, arranged by Rockwell International and televised over HBO cable network included footage of the shuttle takeoff and landing as well as "home movies" taken by Young and Crippen aboard the spacecraft.

In attendance were L. Michael Weeks, Deputy Assistant Administrator for Space Transportation Systems Acquisition, who talked on "Space Transportation Systems Status and Growth"; Dr. Burt Edelson, Senior Vice President at Comsat, who lectured on "A New Era in Communications"; Dr. Stanley I. Weiss, NASA Associate Administrator for Space Transportation Operations, who discussed "Getting Into Business"; and Dr. Klaus Heiss, Chairman of AIAA Economic Committee, who talked on "An Economic Structure to Develop Space Activities."

The astronauts arrived on Wall Street two weeks after being honored at the White House. President Ronald Reagan presented



Left to right: President Reagan, John Young, Robert Crippen, Dr. Alan Lovelace and VP George Bush.

both Young and Crippen with the Distinguished Service Medal, NASA's highest award. The citations read: "For distinguished service as (Commander/Pilot) of the first orbital test flight of the reusable Space Shuttle—a new generation of spacecraft whose highly successful first flight promises continued U.S. preeminence in space."

Young, a veteran of two Gemini and two Apollo flights, was also presented with the Congressional Space Medal of Honor. The award, conferred "to any astronaut, who in the performance of his duties has distinguished himself by exceptionally meritorious efforts and contributions to the welfare of the Nation and of mankind," was first presented on October 1,

1978, to Neil A. Armstrong, commander of the first successful lunar landing and the first person on the Moon; Frank Borman, commander of the first manned spacecraft to leave the gravitational field of Earth; Charles Conrad Jr., commander of the second lunar landing and of the first crew to occupy the Skylab space station; John H. Glenn Jr., the first American to orbit Earth; Virgil I. Grisson (deceased), the second American in space and a major contributor to the Mercury, Gemini and Apollo programs; and Alan B. Shephard, the first American in space.

Young's citation read: "John Young, in a space flight career spanning two decades, has demonstrated the highest qualities of leadership courage and

technical skill. The success of each of his five critical space flight missions has made a major contribution to human progress in the exploration and utilization of space."

The award ceremony at the White House highlighted a two-day visit by the astronauts to Washington which also included ceremonies with the Congress, at NASA headquarters and the Department of Defense.

Meanwhile, President Reagan has announced his intention to nominate James Beggs, executive Vice President, Aerospace Division and Director of General Dynamics Corp, St. Louis, as director of NASA. Once the actual nomination is made, Beggs' name moves to Congress for action.

—Sue Adamo

COMPUTERS

AN ELECTRONIC BILL OF RIGHTS

A network of computer users and owners concerned about civil liberties, privacy, government surveillance and other issues surrounding the rapid spread of computer power are raising public awareness by promoting what they call an "Electronic Bill of Rights."

According to organizers, such a Bill of Rights would take form continually as technical specifications for telecommunications hardware and software (the programs that tell the hardware what to do). Rather than designing systems that violate individual liberties, members of the network are creating applications intended to preserve and protect existing Constitutional guarantees.

For example, one such

freedom-enhancing system has already been designed and put to work. The system, called a "conference tree," is being used to link the info-liberty group together through computers and computer terminals.

"A computer conference is an electronic message system that you can use any time, from anywhere," says John James of the CommuniTree Group and the principal designer of the system. "Messages are organized by topics and subtopics. You can read messages and enter your own, and they are immediately available to anyone else who calls in. You can also start new topics if you wish."

Civil liberties subtopics already going include privacy, cryptography, surveillance, and local, national and international legislation.

"The newest thing about this system is its cost," James ex-

plains. "It runs on a personal computer. My only cost is about \$20 a month for an extra phone line and electricity to run it. I had the computer anyway, and run the conferences during times when it would otherwise be idle. We think that people will jump at the chance to put their home computer's idle time to work for nationwide communicating and organizing of all kinds—at almost zero cost."

The development of the low-cost conferencing system is part of the group's intention to "encourage and support the development and spread of electronic mail systems, computer convention systems and databases." The network also monitors and reports on the actions and pending actions of government agencies, legislative bodies, private groups and individuals which might have an effect on the overall freedom and security of

information channels, whether by presently existing or future communications technologies.

The Info-Liberty network and conference is open to anyone with access to a computer or terminal, free of charge. The computer access number is (415) 928-0641. (Hit "carriage return" or "enter" twice to log on. If you dial this number and just listen, without a computer, you will hear what "computer talk" sounds like.)

Alternatively, for those without access to computers as yet, a printed newsletter is available from the group at a nominal charge.

For more information about the info-liberty newsletter, computer conferencing, small-scale telecommunications or the Electronic Bill of Rights, write: Info/Liberty Internet, Box 14431, San Francisco, CA 94114.

—Dean Gengle

COMPUTER NEWS

ON THE LINE

The electronics industry is growing fast.

How fast is it growing?

Well, so fast... that they know about it in Tiffin, Ohio. In fact, Tiffin's own *Advertiser-Tribune*, in cooperation with Radio Shack, will be publishing the world's first private "electronic newspaper."

Announced last May at the Videotex '81 conference in Toronto, the pilot project will utilize a new method of electronic communication that transfers information over standard telephone lines for display on standard television sets. Users will require a Videotex terminal or a personal computer equipped with the hardware and software necessary to permit it to act as a Videotex terminal.

"We believe that some form of electronic newspaper will emerge as an important information medium in the near future. We want to be involved and have a hand in developing the future landscape," says publisher Kaj Spencer. "Our prime goal is to develop and offer for sale an effective electronic data base which complements the contents of our newspaper. At the same time we expect to learn a great deal."



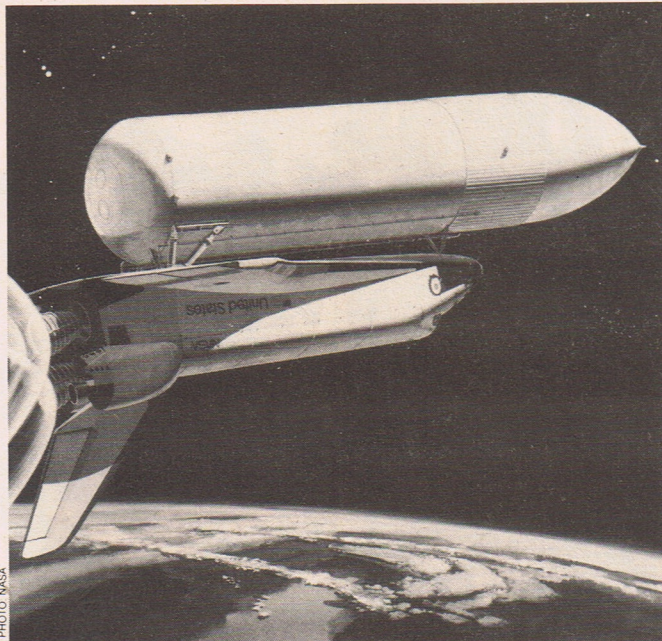
Radio Shack's TRS-80 home computer will transmit the first "electronic newspaper."

Radio Shack's TRS-80 Model II computer equipment was chosen as the host computer in the paper's Videotex network. Spencer says, because "while most of the existing experiments (in Videotex) are either too large in scope or too demanding of financial and human resources for

a newspaper our size, the Tandy/Radio Shack Videotex host computer seems to present the perfect learning opportunity for us at this time. It offers some limited interactivity, graphics and on-demand delivery of news and information to homes using 'off-the-shelf' terminals which are locally available

for a fairly modest price." In addition to the Model II host computer, Radio Shack's Communications Multiplexer is being used to allow the host computer to respond to Videotex callers on several telephone lines simultaneously.

—Soo D. Nimh



The shuttle's external tank will soon weigh less.

SHUTTLE NEWS

ON A DIET

Even while the space shuttle *Columbia* was orbiting Earth, the scientists and technicians at NASA's Michoud facility, near New Orleans, were at work on a two-pronged project that involves designing a lighter-weight external tank and gearing up for their semi-automated production.

According to NASA, the shaving of some 6,000 pounds (about 10 percent of its total weight) from the tank and some of the related equipment will permit more weight to be carried in the cargo bay. Some of the changes underway include the removal of the antieyseyer line (about 600 pounds), withdrawal of some of the stringers (support structures) in the hydrogen tank (560 pounds), discontinuing the use of the fire-retardant paint on the outside of the tank (600 pounds) and the move to a light-weight titanium for the interface hardware of the hydrogen tank.

"Some of the lighter weight will come about as the result of going to automated processes which will allow more precise control on thicknesses of the spray-on foam, which is part of the thermal protection system," says Arthur Koski of Martin Marietta, Inc., which has several

major roles in the shuttle's development and operation. "The first several tanks, essentially, are hand-built. Now that we're in the mode of getting started on producing what could turn out to be almost 500 tanks [including the number needed for the Air Force's own shuttle program at California's Vandenberg base], we're automating the procedures and using precision dimensional control. Where before it was hand-done, well now it will be done by robots.

"For example, the foam which is sprayed out of a gun, like the ones they use to paint cars, was done by hand. Now we have a machine that moves a spray gun in a helical pattern around the tank, putting on just the right amount of foam. That will both control the spray more precisely and allow us to reduce weight because we won't need to put an extra amount of paint on to make sure there is enough."

When completed (the first delivery is scheduled for September, 1982) Martin Marietta will move the tanks by barge through the Panama Canal to the West Coast for missions from Vandenberg and across the Gulf of Mexico to Kennedy Space Center for NASA flights. The new, light-weight tanks will be used on the shuttle's fifth flight—the first fully operational mission.

—Sue Adamo

SPACE TRANSPORT SYSTEM

SOLAR SAIL PROJECT

It's half the size of a football field, is made from super-light aluminum and could be a cheap means of interplanetary travel. It's a solar sail, an idea that has actually been floating around since 1924 but is only now being considered feasible.

In 1973, NASA sponsored a design study to evaluate a solar sail project to rendezvous with Halley's Comet in 1985. But like so many other NASA plans, this too fell prey to the budget-cutting ax. Luckily, though, through the efforts of the World Space Foundation the idea is still alive and well and living in Utah.

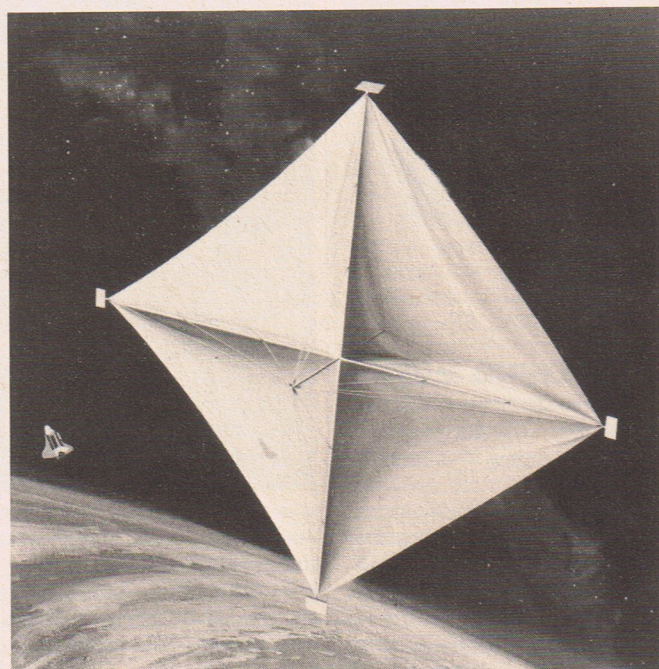
The World Space Foundation, a California-based pro-space organization, has enlisted an undaunted team of aerospace engineers, some involved in the original NASA study, to carry on the dream through their Solar Sail Project. The two-part undertaking entails, first, a low-Earth experiment to test the deployment of the delicate sail, in this case a 1,000-foot triangular design. If all goes well, the second phase will culminate with the launch of a fully operational sail into a high-Earth orbit in 1984. This will be a square sail, up to 155 feet per side,

and will be steered by using moveable tip vanes.

The key principle behind solar sailing is that in a vacuum, light will exert a slight pressure, created by reflected photons of electromagnetic radiation, on an illuminated object. And since space is rather well-endowed with both elements, this could someday provide an inexpensive space transport vehicle. The sail itself is constructed from gossamer-light Mylar and a central body, or bus. The six-foot-diameter bus contains electronics, solar batteries, sensors and other instruments for the mission.

The Solar Sail Project is being supported by Project subscribers, grants, corporate contributions of hardware and services, and the World Space Foundation's general fund. Primary design work is presently being conducted at the University of Utah under the direction of Jerome Wright, a scientist who worked on NASA's ill-fated Halley intercept mission. Additional cooperation comes from the Jet Propulsion Laboratory, the Radio Amateur Satellite Corp. and the Charles A. Lindbergh Fund. Those wishing to contribute to the effort, or who just want more information, should write to The Secretary, D-102, World Space Foundation, PO Box Y, South Pasadena, CA 91030.

—Bob Woods



An artist's concept of the proposed solar sail.

ART WORLDS

VISIONS OF TOMORROW

Science fiction literature and visual art seem to have one problem in common: Neither are, for the most part, fully accepted by the literature or art establishments as legitimate forms. However, there is at least one gallery in the heart of the Soho district of New York City which hopes to bring SF art more fully to the attention of the public.

The Museum of the Surreal and Fantastique, which first opened its doors last March, is the brainchild of Kenneth Hansen and Joyce Herrnan-Hansen. In 1980, they had observed the en-

thusiasm which greeted a showing of the art of H.R. Giger at a 57th Street gallery. "The reaction was nothing short of amazing," recalls Hansen. "Tremendous interest from all levels of collectors and gallery goers."

So, one year later, they opened their new museum with a show entitled "Aliens," which included the words of Wayne Barlowe, Carl Lundgren, Michael Whelan and Michael Sullivan (whose photography adorns this issue's cover). And this summer, through August 2, they will be presenting "In the Year 2021," a show featuring artistic visions of the future. Works include paintings by H.R. Giger, whose mechanistic beings (or biological machines?) inspired the film *ALIEN*; John Berkey's fantastic spacecraft; and other visions of tomorrow by Michael Whelan, Vincent Di Fate, Syd Mead and Dean Ellis.

"We really think that much of this art will be finding its way into the fine art mainstream in the '80s," says Hansen. "Although the first two exhibitions have contained a great deal of art used in science fiction, future shows will stress other aspects of the many genres of surrealism and the fantastique." Such exhibits will include a show focusing on the work of H.R. Giger, and possibly a major retrospective exhibition of the art of Syd Mead.

The Museum of the Surreal and Fantastique is open Wednesday through Friday, 11 a.m.-5 p.m.; Saturdays and Sundays from 1-6 p.m.; and is located at 561 Broadway, New York, NY 10012; telephone (212) 431-3034.

—Barbara Krasnoff



H.R. Giger's "ALIEN III, Side View, Version 3"

ART © 1979 H.R. GIGER

COMING ATTRACTIONS

WATCHING MUSIC

Ron Hays, a video artist of long-standing reputation, has been called "the man who sees music." One of his most recent visions is being released to the home video market as *The Ron Hays Music-Image Odyssey*.

Odyssey, which runs for 45 minutes on stereophonic video discs and video cassettes, is being released with a United Artists

motion picture film package by Magnetic Video, which is available in about 5,000 retail stores across the country.

Ron Hays says of his work, "The Music Image Odyssey is a phenomenon of visual effects and music. It transports the viewer through time zones of electronic computer animation and music." The visual-music compositions are created by Hays, who has worked with this medium for over 10 years. His work has been seen in such feature films as

RETAIL

SF STORE OPENS



Science fiction fans examine the goods at Forbidden Planet.

The store's visitors list reads like an SF book's bibliography. There's Ron Goulart, Gil Kane, Mike Kaluta, Gahan Wilson, Kurt Vonnegut, Harry Harrison, Ian Ballantine, Boris Vallejo, Johnny Ramone... Johnny Ramone? "He's one of our regular customers," says a spokesman for New York's newest science fiction emporium, Forbidden Planet.

Opening last April with Wonder Woman in attendance, Forbidden Planet is actually a sister company to a successful London store begun three years ago, and like its English forebear it's gearing up to cater to the most hardcore fans, including the three-suited businessmen that visit the store twice a week to cram 15-20 comics in their briefcases.

In addition to a wide selection

of new and rare comics housed on the bottom level of this two-story store, Forbidden Planet is stocked with masks, toys and games, art portfolios (including those of French artists Moebius, Bilal and Druillet), science fiction and science fact paperbacks, and magazines, both new and out-of-print. The store recently held an autograph session with artist Richard Corben and expects to host more such events.

The hottest item as of this writing? Hands down, it's Douglas Adams' *Hitch Hiker's Guide to the Galaxy*: paperback novel, cassette and record.

The store is located at 821 Broadway at 12 Street in lower Manhattan, NYC, and is opened from Monday through Saturday, 10 a.m.-7 p.m. and on Sunday from 11 a.m.-5 p.m.

—Sue Adamo

Demon Seed, *Sgt. Pepper's Lonely Hearts Club Band*, *Can't Stop the Music* and TV's *Logan's Run*.

Odyssey is the first made-for-home video "experience." Hays recommends, "Watch it in a dark room, no other lights on, and hook your video machine through your stereo for really top sound. The picture should be adjusted so that black areas are very dark; the images will seem to float in space. Your TV then becomes a spaceship, transporting the

viewer into realms of phantasmagoric beauty. The music ranges from classical to electronic to jazz fusion."

Odyssey uses a wide variety of forms and images. Hays seems to have the ability to sculpt with molten light, producing a quality and detail that cries out for big-screen presentation. This aspect has not escaped Hays, who is investigating the possibility of large-screen theatrical presentations of *Odyssey* coupled with a live laser show.

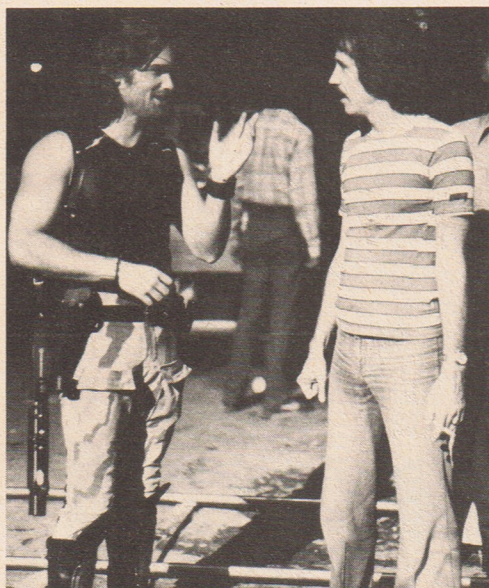
—David Hutchison

URBAN BLIGHT

One of the mainstays of science fiction is the "future urban jungle"—in other words, if you think the cities are bad now, you ain't seen nothing yet! The motion picture industry has taken full advantage of this scenario in the past (in such films as *Soylent Green*), and now has submitted a new entry to the list of pessimistic presentations—*Escape from New York*.

Escape, which was directed by John Carpenter (whose credits include *The Fog* and horror classic *Halloween*) concerns New York City—or what's left of it—in the year 1997. Manhattan has been turned into the ultimate maximum-security prison, and the inmates rule the roost. In the middle of all this, the President of the United States literally "drops in"—via a disabled jet—and is held hostage by the local bad guys. In desperation, the U.S. government calls upon the world's greatest criminal, Snake Plissken (played by former Disney child star Kurt Russell), to rescue the besieged head of state.

On a more cheerful note, the latest look at robots will be appearing around Christmas. *Heartbeeps*, which will star noted



Kurt Russell and director John Carpenter on the set of *Escape From New York*.



Harrison Ford, seen here in *Raiders of the Lost Ark*, will soon appear in *Blade Runner*.

crazy comic Andy Kaufman and Bernadette Peters, concerns the adventures of two wandering automatons who can't seem to get their programming together.

Farther in the future (in May, 1982, to be exact), SF fans can look forward to *Blade Runner*, a movie version of Philip K. Dick's classic SF story *Do Androids Dream of Electric Sheep?* The film, which is being directed by Ridley Scott (*ALIEN*), stars Har-

rison Ford as a detective of tomorrow involved in a murder mystery. Mr. Ford is, of course, well-known to *Star Wars* fans as the intrepid mercenary Han Solo.

Han Solo will return, along with his fellow rebels Luke and Leia, in the third part of the *Star Wars* trilogy, *The Revenge of the Jedi*, due in May, 1983. Filming on the Lucas space extravaganza is due to begin January 1, 1982.

Finally, fans of the Frank Her-

bert *Dune* novels may at last have the chance to see their favorite desert world onscreen. The film will be a co-production between Universal and Dino De Laurentiis, and production is due to begin in the spring of 1982. Since Ridley Scott, who was originally going to direct, is busy on *Blade Runner*, David Lynch (*Elephant Man*) will be overseeing the project—on a measly budget of \$30 million.

—Becky Sharp

ACID TESTS

INSECTICIDAL SOAPS

Fatty acids—the same stuff soap is made of—are a potent weapon against insects, according to research by a Canadian scientist. Use briefly before World War II, they were forgotten when petrochemical insecticides were developed. Their effectiveness was re-discovered by accident during an experiment by Dr. George Puritch of the Pacific Forest Research Centre, Victoria, B.C.

As Puritch tells it, he decided to use a fatty acid solution as a control instead of water—and much to his surprise, it killed all his insects. Because of its inherent qualities, Puritch thinks the soap insecticide is a good alternative to toxic petrochemicals.

Fatty acids are made from plant and animal fats and oils, thus are a renewable resource,



Insecticidal soaps could be an alternative to petrochemicals.

Puritch said. They are also selective exterminators; they're ideal for integrated pest control, he said, because they spare beneficial insects, such as honey bees, ladybird beetles and

parasitic wasps. "But the main point is their safety," Puritch said. "They're part of our ecosystem. They're part of what we eat."

Puritch describes the develop-

ment of soap insecticides as "research in reverse." Usually, researchers find a chemical that kills pests, then determine its toxicity to humans and the environment. In his research, he started with a known safe substance, then tested its effectiveness as an insecticide.

The product's safety has made it a popular item among plant care companies that tend plants in hospitals, restaurants and other public places, said Sergei Condrashoff of Safer Agro-Chem, Ltd., which began marketing the insecticidal soap in the United States this spring.

Lest any of you are dreaming up your own soapy insecticidal solutions, Puritch hastens to add that there are hundreds of fatty acids used in industry to make a variety of products from crayons to cosmetic powders. The ones used to make bath or laundry soaps probably wouldn't hurt a fly and could even harm plants.

—Cathy Stone

Freed from Earth's
obscuring atmosphere,
a new scientific tool will
become humanity's eyes in orbit.

SPACE TELESCOPE

By HARVEY J. BERMAN

Four years from now, rocketing into orbit 310 miles above Earth, NASA's 43-foot-long Space Telescope will blink on and begin probing the farthest reaches of the universe, never before seen by human eyes. For astronomers everywhere, the occasion will be an epic event ranking with Galileo's first awkward but landmark achievements in studying and charting our solar system. More than that, it will be the culmination of a long-cherished and elusive dream, dating as far back as 1923, when German spaceflight seer Herman Oberth envisioned future rocketchips that would carry giant telescopes into space.

As an enthusiastic spokesman for the National Aeronautics and Space Administration puts it, "What the microscope is to the biological sciences, our new Space Telescope will be to astronomy. It will open wide the door to the heavens and provide us with easy access to the deepest and most enigmatic recesses of space."

"Twinkle, twinkle, little star..." may be a nursery rhyme for kids. But for astronomers, it's long been a stubborn and unyielding barrier to the exploration of far-out space.

"Our present scopes can zero in only on twinkling stars out there in the firmament," concludes the NASA official. "Our new instrument, however, will focus clearly on objects at least 50 times dimmer."

Slated for blast off aboard a space shuttle in mid-1985 and, if maintained as planned, scheduled for at least a 15-year life-span, the \$600-million orbiting telescope will mark the culmination of a determined and brilliant scientific effort launched by NASA. With a reflecting mirror 94 inches in diameter (which is actually only in the mid-range size of today's large reflecting telescopes), the equipment—being built by the Perkin-Elmer Corporation, Danbury, Conn.—will be the world's most powerful. Its mirror alone will require a minimum of two years to design, grind and polish.

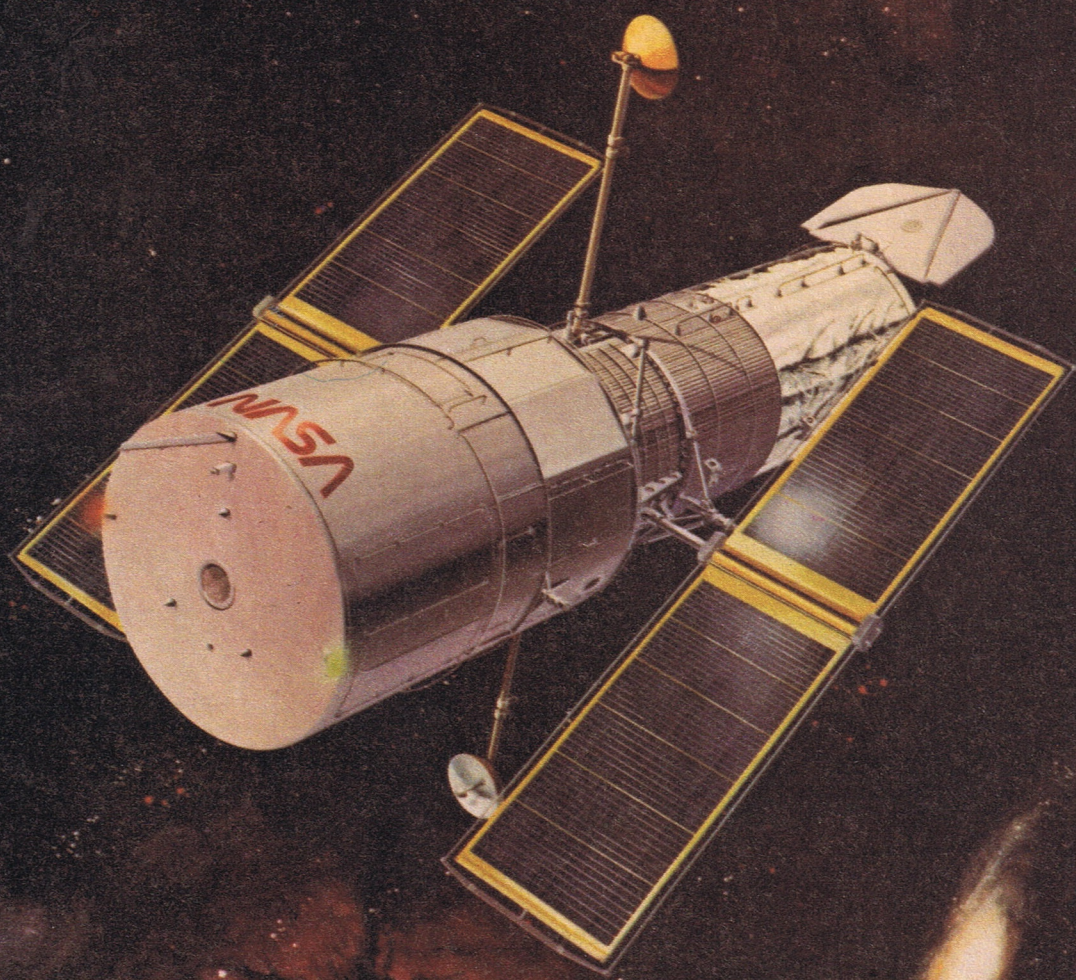
Once in orbit, NASA's new "eye in the sky" will immediately eclipse every Earthbound telescope now in use. Even the nation's most famous one currently in service, the 200-inch unit atop California's Mount Palomar, will become second-best.

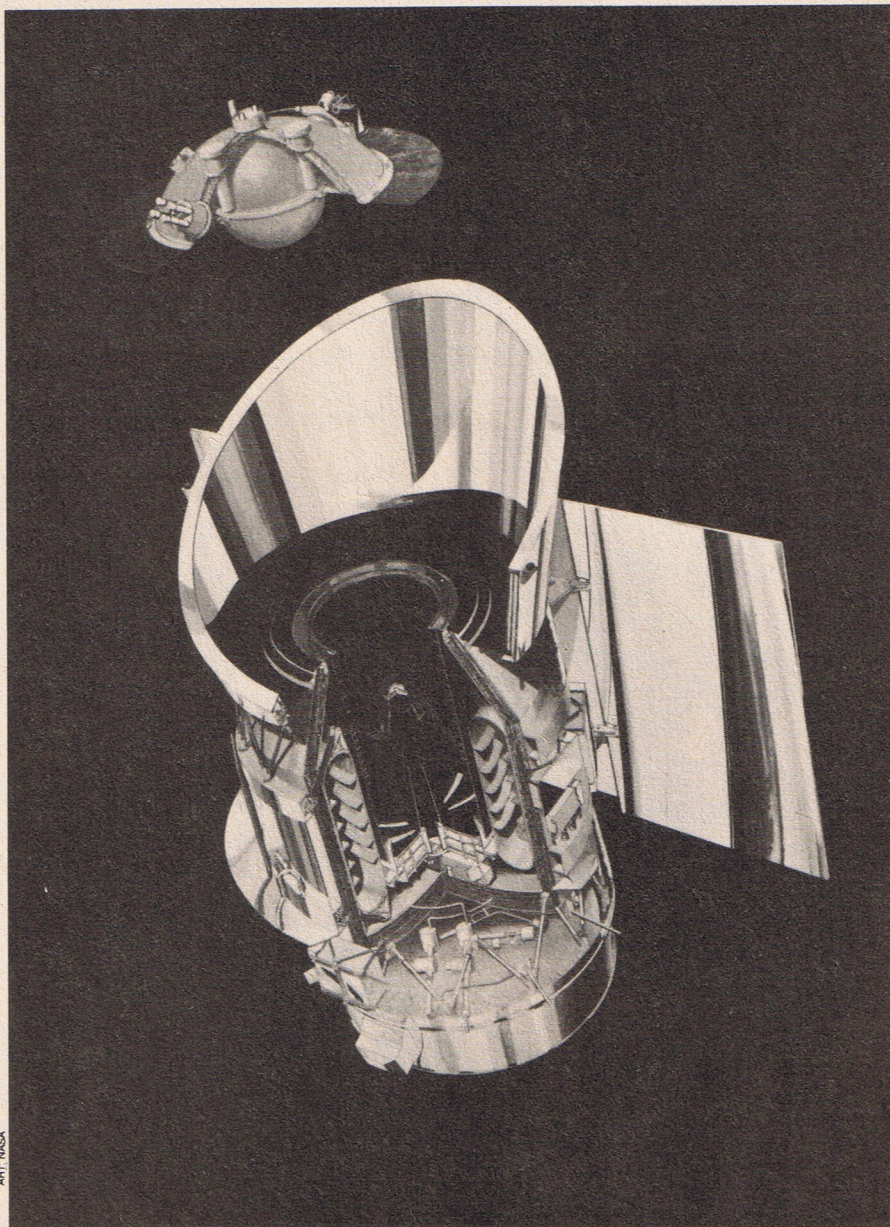
Trained on the skies, current ground instruments can "see" up to 90 percent of the visible universe. But floating atop Earth's "dirty" atmosphere, the space telescope will bring the most distant ten percent of the heavens into clearer focus.

It's precisely this ten percent that has so many experts—astronomers, astrophysicists, geologists, biologists—so intrigued. Scientists firmly believe that it holds the long-hidden secret of the Big Bang that created our universe.

Starlight emanating from that region, virtually the outer fringes of the universe, has been clawing its way through to Earth for more than 15 billion years. This is just about the suspected age of the universe itself, many researchers maintain. One of the prime assignments

Right: Artist's concept of the Space Telescope, which will be able to detect cosmic images that originated 14 billion years ago. New planets of other solar systems may also be visible. The shell was built by Lockheed; the optics by Perkin-Elmer.





ART: NASA

Here is another new NASA telescope, this one a sensitive infrared device known as IRAS (Infrared Astronomical Satellite). Recently shipped from Boulder, Colorado, to the Netherlands for mating with its Dutch-built spacecraft, its purpose is to make the first comprehensive infrared survey of the entire sky. IRAS will map perhaps a million infrared sources, many of them previously unknown, since infrared light from the stars and other cosmic sources is blocked by Earth's atmosphere.

of the superscope will be to check out and evaluate recent findings that the universe may actually be only half as old as believed. Scientists are also intent on proving an increasingly popular theory—that the universe is expanding at twice the accepted rate. These challenging roles, however, are only the beginning.

"We've been waiting so long for a Space Telescope, and have compiled such an extensive list of projects for it to perform, that there's a huge backlog. Many of us will have to queue up—as in a butcher shop or bakery—and take a number," quips a member of the National Academy of Sciences. "The unit's potential is unlimited. And believe me, we intend to put it to excellent use."

For one thing, astronomers anticipate that the obscure light picked up by the instrument should provide them with exciting new insights into the possible existence in the far reaches of the universe of the type of chemistry required for intelligent life. Using present equipment, they already conjecture that there's life-giving chemistry elsewhere. The advanced telescope may provide them with the vital data they need to convert their big questionmark into an exclamation point.

Still another target of NASA's orbital eye will be deep space's black holes. These space objects are so dense and impenetrable that they completely stymie the passage of light. Pulsars and

quasars, as well as other objects emitting powerful radio signals from the black void of outer space, will also be analyzed.

One of the most intriguing and potentially rewarding tasks awaiting the Space Telescope will be to track possible new planets revolving around distant stars, just as Earth and its sister spheres circle the sun. Astronomers are all but certain these planets exist. Nevertheless, they can't be 100 percent sure, since they've never actually seen them. Hopefully, the telescope will enable them to do this for the very first time.

In its orbit 310 miles above Earth, the NASA probe will focus on space objects through an opening in one end of its long barrel. Capturing images, it will shoot them through a series of intricate baffles to its main reflecting mirror. The light garnered by the mirror will then be filtered through two extremely sensitive, high-resolution TV cameras, two spectrometers and a photometer, and then be converted to electronic signals and recorded. From there, they will be beamed down with the aid of power-packed radio transmitters and relay satellites to a battery of computers and display screens (as in the case of the Voyager flyby of Saturn last year) at the Goddard Space Flight Center just outside Washington, D.C., for analysis and evaluation.

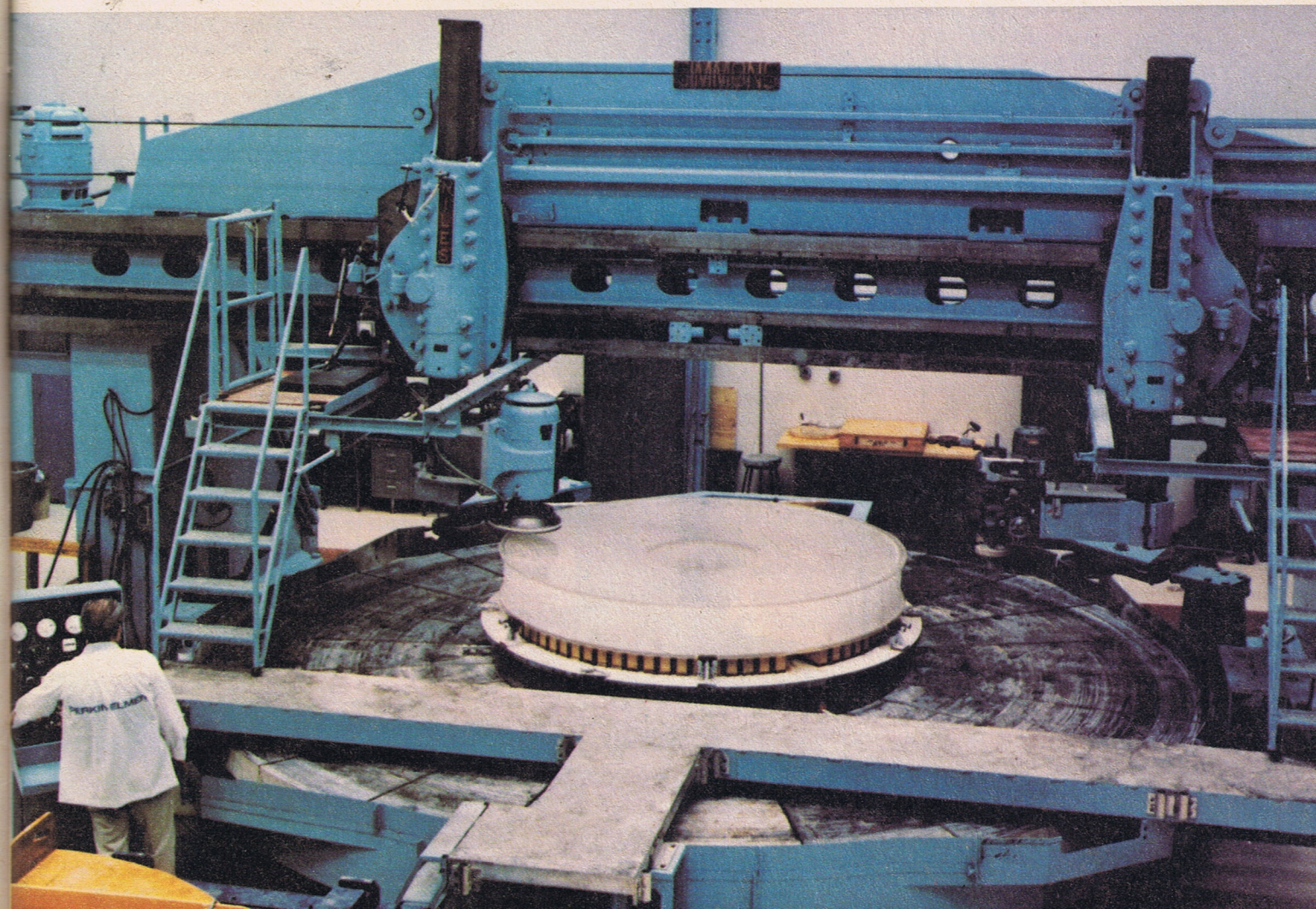
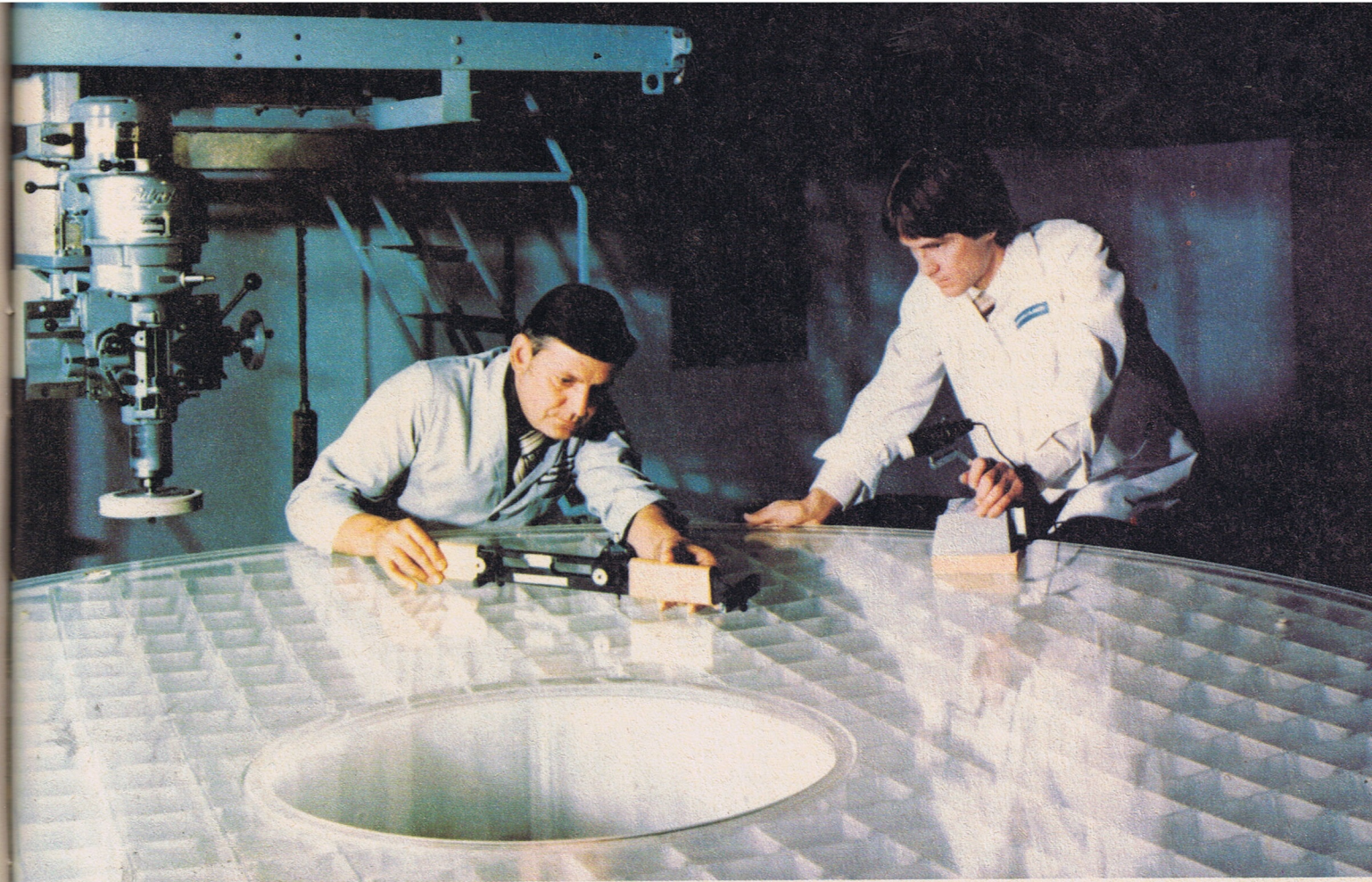
Should anything go wrong with any of the telescope's components, estimated to cost \$30 million a year to operate, shuttle crews will be dispatched from the Kennedy Space Center at Cape Canaveral to repair them. The entire instrument can also be retrieved from its orbit and returned to Earth when major repairs can't be affected.

Following months of fierce competition among several university's astronomy departments, NASA has chosen Johns Hopkins University in Baltimore—in close proximity to the Goddard Center—as the base for its new Space Telescope Science Institute. The headquarters will have a staff of 150, including 40 astronomers, all under the umbrella group AURA (Association of Universities for Research in Astronomy).

Princeton University's astronomer John Bahcall, who headed his department's effort to house the new institute, sums up the project by stating, "There's no doubt that for us the center of the universe will now be moving very close to Baltimore." □

Engineers at Perkin-Elmer carefully inspect the Space Telescope's honey-combed primary lens.

PHOTOS: PERKIN-ELMER



Students Look to the Stars

By RICHARD LEVINE

Would you like to have access to an astronomical observatory orbiting the Earth? It may soon be possible. All you'll need is membership in the Independent Space Research Group (ISRG), a grassroots coalition of professional and amateur space enthusiasts, and a slow-scan TV set.

The ISRG, organized by students at Rensselaer Polytechnic Institute (RPI) in Troy, New York, has announced plans to build and launch a general access space telescope in 1984—just in time to view Halley's Comet.

The telescope, which will have an 18-inch diameter lens, will be contained within a 175-pound, six-foot-long satellite. The satellite will be carried into orbit via piggyback space offered on either NASA or Arian (ESA) rockets.

Once in orbit, the ISRG telescope will be used as a research instrument and educational tool available to students, educational institutions and professional and amateur astronomers. General accessibility to an astronomical satellite could revolutionize astronomy education and make space exploration a feasible pursuit for hobbies, just as advances in radio technology once spearheaded the international network of amateur "ham" radio operators.

The ISRG project is an example of how recent advances in electronics and microprocessor technology are making it possible for amateurs to construct relatively sophisticated satellites at low cost, using commercially available equipment and volunteer labor. The ISRG estimates the project will cost less than \$100,000. This is well within the budget of a typical national membership organization.

The ISRG membership, which doubled in April, reflects a renewed public interest in space exploration. Many of the ISRG members grew up during the six years since our last manned venture into outer space. Until the inaugural flight of the space shuttle, these members felt cheated.

Their youthful imaginations were fired by the unfolding drama of America's manned space flight programs, in much the same way today's children are wowed by the fantasy of *Star Wars*. Many members recall days they went to school while manned Mercury and Apollo capsules whipped around the Earth or catapulted across the cold

recesses of space to orbit the Moon and return safely. Classrooms could not contain their imaginations on these days.

Many ISRG members cite America's space efforts as being responsible for their initial and continuing interest in science. Now that they have acquired the skills that ten years ago would have placed them on the team that took that "giant leap for mankind," they find funds for such projects have dwindled.

This sense of loss is part of the inspiration behind the ISRG, and they have the support of RPI's faculty and administration. In fact, in the fall of 1981 any student involved in the design and construction of the ISRG satellite will receive course credit. It is the only program of its kind, but if the number of students across the nation that have joined the ISRG is any indication, RPI's

initiative could start a trend.

The ISRG had already selected an initial research project: to photograph planets and measure the varying brightness of "pulse" stars. The ISRG satellite will transmit these pictures and related data to Earth. Its signals could be picked up by anyone with a few hundred dollars worth of commercially available photographic printers or slow-scan TV sets. All research projects, including this inaugural effort, are to be chosen from suggestions submitted by members of the ISRG.

In the near future, photographic printers and slow-scan TV sets might become as common a sight in a classroom as computer terminals are today. General-access satellites could make space exploration as simple as turning on your TV set.

□



The members of the ISRG plan to send up their own general access space telescope in 1984.

ROBERT ANTON WILSON

By DEAN GENGLE

Rumors that Robert Anton Wilson is a figment of Josephine Malik's imagination are entirely specious. Wilson was, in fact, born in 1932, in Brooklyn, where he took an early imprint on "all the little boidies, picking in the toidies," as readers of his current trilogy, *Schrodinger's Cat*, will recognize instantly.

He has been living in California since 1971, and has been married for 22 years. In addition to being a leading figure in the study of *exo-psychology*, he is also a futurist of some note, being vice-president of the Institute for the Study of the Human Future. He writes novels all the time now, and is on his way to completing a series of 12, tracing the history of human thought from 1600 to 2000. He is influenced in this endeavor by Beethoven, James Joyce, Ezra Pound, Albert Einstein, Marilyn Monroe and Simon Moon.

Do you really believe in all the conspiracy stuff that figures so heavily in your books?

Absolutely. Adam Smith wrote over 200 years ago that "men of the same profession never meet together except to conspire against the general public." Every profession is a conspiracy. Every political party is a conspiracy. The oil companies conspire. I conspire every chance I can; that is, I write enthusiastic reviews of new books by my friends, and they write enthusiastic reviews of my books. There's nothing sinister about all this, and it has a natural, sociobiological



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basis. Every genepool is a conspiracy. The lions conspire against the zebras. The sparrows conspire against the earthworms. It makes sense for groups with similar goals to work together, to synergize their efforts. It only becomes a bit nasty and kind of spooky when people start hiding bits of information ("top secret"—"your eyes only"). When they start spreading deliberate misinformation (lies) to gull their competitors, it becomes not only nasty and spooky but comical in a bizarre way. Twenty groups hiding ten facts each produces 200 bits of compound ignorance—holes in our perceptual field. And 10 groups circulating 10 non-facts or lies produce 100 bits of false information. This is very clever, from the point of view of each group doing it, but from the whole species point of view it's just plain dumb. A species needs adequate information to survive.

All of us, including the principal conspirators, are now living in a deluge of ignorance and misinformation. Nobody knows what the hell is going on any more. As a comic writer, I find the whole conspiratorial scene an endless source of material for farce and satire.

Do you know what a useful idiot is? That's CIA jargon for somebody who's working for them but doesn't know it. The useful idiot may think he's working for the IRA, or the Quebec separatists or a corporation named, say, International Afterbirth and Placenta, Inc. I think every conspiracy has useful idiots who are working for them without knowing it. Every day I ask myself at least once, "Am I a useful idiot?" It keeps me from taking myself too seriously. I think the trouble with most conspiracy buffs is that they're so grim and humorless. They never stop to wonder if *they* might be useful idiots.

Besides, "the future belongs to the creative mind," as somebody or other once said. I think my conspiracy is the brightest, quickest, smartest gang on the planet and we have moved in on the future already, while most people are still living in the past, like the so-called "Moral Majority," or trying to get into the present, like the useful idiots in the consciousness movement, which is really a front for Darth Vader, you know. The past is dead and you can't find the present because it vanishes while you look for it, but the future is uncontaminated, just waiting for consciousness to fill it and occupy it.

Researchers at both Stanford University and MIT, among others, have developed the mathematics of encoding information such that it is now possible for every man, woman and child on the planet to have their very own secret and unbreakable code. This means, in effect, that we can have secrets. The question now becomes: What can we do with this capability?

To me, it's a dead-end. I think secrecy is a form of behavior that will gradually get phased out as evolution proceeds. Nothing that is important can remain hidden for long. The whole thing about the United States having a monopoly on nuclear weapons and then the Russians stole the secret, which was how the whole national security hysteria got started... that was all nonsense. You can't keep a law of nature secret.

Anything as big and as obvious as a law of nature, or a sociological or psychological or sexological fact, for that matter... nothing like that can be kept secret. The whole emphasis on secrecy, which really goes back to the ancient priesthoods who kept all of their techniques secret in order to hoodwink the general public... the Egyptian priests kept writing a secret so no one else would know about it... so did the Mayan priests. The Egyptian priests kept secret how they made that statue hoot at sunrise every morning. That was all very exploitative. And the secrets most corporations keep are secrets that will allow them more ways of exploiting the consumer. Patents, and so on, eventually leak out no matter what the law says. People find ways of doing things just differently enough to get around the patent laws. I think all secrecy basically goes back to the scarcity economy and the idea that you're always in competition, there's not enough to go around, you gotta get an edge, you gotta get an advantage, so they start hoarding information units the way food is hoarded and the way money is hoarded in bank vaults and so forth. All those types of behavior are, I think, very primitive and mammalian and they're getting phased out as we become more intelligent and realize that the prosperity of the whole human race depends upon transmitting all information units as rapidly as possible to as many people as possible. The more we all know, the more successful we all can be. The more that's being hidden, the stupider we'll all be.

What, if anything, is the relationship between secrecy and privacy? Would it be all right with you, since you don't believe in secrets, if I stationed myself at

your front door and read your mail every day?

Well, ideally, I think that's the way it should be some day. People shouldn't have any secrets at all. For instance, the whole gay pride movement is a breaking down of a vast, tremendous blackmail racket that police forces of various kinds have been involved in for the last 100 years or so, at least.

So the police agents are probably pissed off that we are removing one of their sources of income and power as a result of the "sexual revolution"?

Sure. I remember hearing Allen Ginsberg being interviewed in 1957, and the interviewer asking, "Why are there so many references to homosexuality in your poetry, Mr. Ginsberg?" And Allen said, "That's 'cause I'm queer." And I thought, "My god, we've entered a new historical epoch... I've never heard anyone say that on the radio before!" I

The gay pride movement is a breaking down of a vast tremendous blackmail racket that police forces of various kinds have been involved in for the last 100 years or so at least.

think that took a lot more courage in 1957 than it takes now. Ideally, I think everybody should come out of the closet, about anything. Let it all hang out. I think that's the magic of an est seminar, when everybody realizes that the people they're afraid of are afraid of them. Everybody's trying to make a good impression, and worried that the other person is thinking, "Gee, what a schmuck he is... what a clown... what a toad." And while they're worrying about that, the other person is thinking the same thing. The whole group encounter movement is probably one of the healthiest things in our society.

But what if they did, in fact, tell all? Wouldn't people still have differences, and wouldn't those differences still create gaps in our informational and perceptual fields?

No. They would be enriching. Differences are created, I think, by the

DNA code, because they serve an evolutionary function. I think that one of the great things about the United States is the diversity of the genetic and cultural pools. There are certain differences that are probably going to disappear over time, but there are a lot of differences that are tremendously valuable. Everybody in the United States, for instance, would become considerably more intelligent if they were to spend two days discussing basic philosophy with, say, a Russian chemist who was a strict dialectical materialist, and a Japanese businessman who's out for the profit like any American businessman but does Zen meditation, or the Arab shiek who is convinced that women are animals. You wouldn't necessarily agree with all the views you heard, but being submerged in these differences makes you more aware that your own reality island is highly arbitrary and crazy. And the more reality islands you allow to impinge on yours, the bigger your reality island becomes and more of reality you can see and sense and feel and apprehend.

In the long run I'm against secrets. Intelligence is based on the ability to apprehend whole systems, and the more that's hidden, the less intelligence can do. It's actually been proven, in experiments that have been conducted by a lot of psychologists in the last 15 years—since LSD mutated them. There has been an awful lot of experimentation done on what people do when things are hidden from them: They invent extravagant metaphysical theories to account for what they can't find out about any other way. The more disinformation students are fed in these experiments, the more elaborate their metaphysical theories become. And the more like the mentations of clinical lunatics their speculations become. This is an attempt to account for reality when you're deliberately kept from seeing parts of it, or are being shown things that aren't part of it in the guise that they are. That's why I'm against secrecy, and the politics of lying and deception and hiding things and so on. That's the long-run perspective. On the other hand, while it's going on, I think it's delightful that secret codes have been invented that the government itself cannot penetrate. And I do not believe that the government can establish a monopoly on secrets. They can do it *de jure*... they can write laws and claim they've got a monopoly on secret codes, but *de facto* they can't make it work. I know enough people in the computer business to know that there are all sorts of ways things can be

hidden using trap-door codes, and the government can't get at them. Even if they pass laws, they can't.

True. The essential information on how to construct these codes is out.

This fellow in Seattle (and I hate to mention something and not identify it fully, but I can't remember who makes it or where it comes from, exactly) made a device that was the subject of legislation in the last couple of years. This device attaches to your computer and allows you to encode data in such a way that you're the only one who can get at it, so all sorts of information can be stored and the government can never get at it. So I think it's sort of comical that the government could even think it could enforce its claim to a monopoly on secrets, anyway. Anybody can have secrets now. And in the short run, I guess that's healthy. If the government is doing it, other people would be allowed to compete with them and do it, too. But in the long run, I think the game has to be abolished, and everything has to be open.

With all the disasters happening today, can you really say we have a future?

We don't *have* a future, we *create* a future. As I said earlier, the future is uncontaminated—void and without form. The creative mind will fill it. My conspiracy (Negative Entropy, Inc.) is always working to fill every void with more creativity, and to frustrate Darth Vader and the Death Dwarfs in the Vatican, who represent entropy or incoherence.

The present is no worse than the past, anyway. The local galaxy was actually built by Swift Kick Company, the shoddiest contractors in the space-time continuum. They are real bandits—experts at cost-cutting, shady dealing and all the arts of increasing the profit margin by decreasing the quality of the final product. As soon as they collected their fee, the whole system started falling apart. Comets smashing into planets, ice ages, cosmic catastrophes, black holes—lousy workmanship all the way down the line. Probably, they were secretly in league with Darth Vader, as the gnostics suspected.

But the point is that life thrives, despite all that. Read *Watership Down*. The smartest rabbits always survive, even on a planet as brutal and punishing as this one. The moral is obvious: Get smart. Despite its tremendous popularity with all political parties and organized religions, stupidity is not a survival asset.

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What motivates you?

I want to be smarter next week than I am today. I want to get off the Planet of the Apes and join other pioneers in creating better worlds in outer space. I want to live forever. I want to see the universe next door. As Dogen Zengi said, "Time is three eyes and eight elbows." Is that clear?

Well, let me put it this way: Genesis is war propaganda, written by Darth Vader and the Empire's PR men. In the gnostic gospels, which are war propaganda written by the Rebels, the real true honest uncensored story is told. Darth Vader has seduced humanity with the dark side of the force. We were never thrown out of paradise. All you know is what registers on your brain. Take over the Reality Studio, and get rid of Darth Vader and the Vatican Insect Zombies. Write your own script. The universe—that is, the future—emerges out of pure quantum chaos by acts of will every

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nanosecond.

I learnt all this from a great Christian scientist and Zen master named Hugh Hefner. I worked for Hef for five years. One day I realized that he literally lived in an island of expensive stereo equipment, unlimited luxuries and hot running Playboy Bunnies. And I realized that he had dreamed up that reality as a young college boy in the 1950s, and then he manifested it. I decided to dream up my own reality and then manifest it. If you don't create your own reality, Darth Vader is still controlling you; you're just a robot manipulated by the dark side of the force.

You take Darth Vader as seriously as you take conspiracies, don't you?

Certainly. Oh, there are primitive systems like quantum physics, in which he's personified as entropy, or Christianity, in which he's called the devil. But under any name he is the spirit that says,

"No. You can't do that." *You can't invent your own reality. You can't abolish poverty. You can't escape from the Planet of the Apes. You can't. . . you can't. . . you can't.* Fuck him, I say! According to an old gnostic tradition I just invented, his real name is Loudmouth and the way to get rid of him is to refuse to believe in any limits whatsoever on your freedom, your creativity, your consciousness and your intelligence.


Do you think of yourself as a "successful writer"?

I have to. After all, if I don't, who will? I have discovered that if one's opinions of one's powers and talents is too low, nobody will bother to correct it. They will say, "Oh, he's one of the toads," and walk all over you. On the other hand, if your opinion of yourself is too high, the universe will eventually hammer you down to a more reasonable estimate. So I never accept any limits until they are forced upon me and then I only accept them for today. I expect to be smarter tomorrow. Those who miss this point, or deny it, are by definition toads.

What is a toad?

A toad is somebody who thinks someone else is in charge. In other words, a toad says, "I can't do this. I can't do that." I always define myself and my friends as the Power Elite and assume that we can make it all the way to Watership Down, or Big Rock Candy Mountain, or the heavenly city, or whatever you want to call the next step in evolution.

Why should anyone read any more, much less read your books? Aren't readers becoming an extinct species?

My books are not interrupted every ten minutes by commercials for tampons and Datsuns. Many people claim they're as funny as or funnier than *Laverne and Shirley*. Some have been kind enough to say they're even funnier than *Archie Bunker's Place*. My books tell you how to get smarter and live forever, which nobody on television will tell you right now. As for reading in general: The more arts and sciences skills you've mastered, the easier it is to see alternatives and not get trapped by Darth Vader's Fog Machine. If you know kung fu, can read and write, can solve a quadratic equation, program a computer, set a bone in an emergency and keep learning new skills every year, nobody will ever convince you that you are one of the toads. 

From Whence We Came

Creationists vs. Evolutionists

By BARBARA KRASNOFF

The advocates of "creation science" which says that life was produced in its present form several thousands of years ago by an unnamed supernatural force are demanding equal time.

T rue or false: In the beginning, God created the heaven and the Earth.

Having trouble? Well, you're not the only one. For the past 20 years or so, Darwin's theory of evolution, which hypothesized the natural and gradual development of current life from more primitive forms, has been more or less accepted as the basic text for biology classes. However, recently there has been a growing and very vocal movement of people who want to add a new twist to the curriculum. The advocates of what is known as "creation science," which says that life did not evolve slowly over billions of years but was produced in its present form several thousand years ago by an unnamed supernatural force, are demanding equal time.

In 1925, it was the evolutionists who were doing the demanding. The small Tennessee town of Dayton became the center of worldwide attention when a young science teacher named John T. Scopes deliberately challenged the state law which prohibited the teaching of Darwin's theory. The subsequent court proceedings and all the hoopla that surrounded them became known as the "Monkey Trial," and while Scopes lost the case and was fined \$100 (a judgment which was later overturned on a technicality), the ridicule that the anti-evolutionists drew from public and press alike seemed to be the death knell of their movement.

(Incidentally, Scopes later confided to Stanley L. Weinberg, a biology teacher and author, that he never actually taught the famous lesson in evolution. He had been ill that day and absent from school, and professed himself quite amused at the detailed accounts some of his students gave about the nonexistent lesson.)

More than 55 years later, the tables seem to be turning. But while the new challengers are not suggesting that the theory of evolution be barred from the

science classroom, they are asserting that their theory should be presented as a legitimate alternative.

Dr. Henry Morris is the director of the Institute for Creation Science, a division of Christian Heritage College based in San Diego, California. As he explains it, "A creationist is a person who believes that the basic systems of the universe have to be accounted for in terms of a supernatural creation that took place in the past; whereas an evolutionist would say that you could explain everything in terms of natural processes that are still going on."

"In other words, the first man had a fully human body and mind and soul, and did not develop by natural processes from something like an ape or some primate form."

The creationists, with the help of such research institutions as the ICR, and organizations such as the Creation Research Society and the Creation-Science Research Center, have marshalled some impressive arguments to support their position. These include:

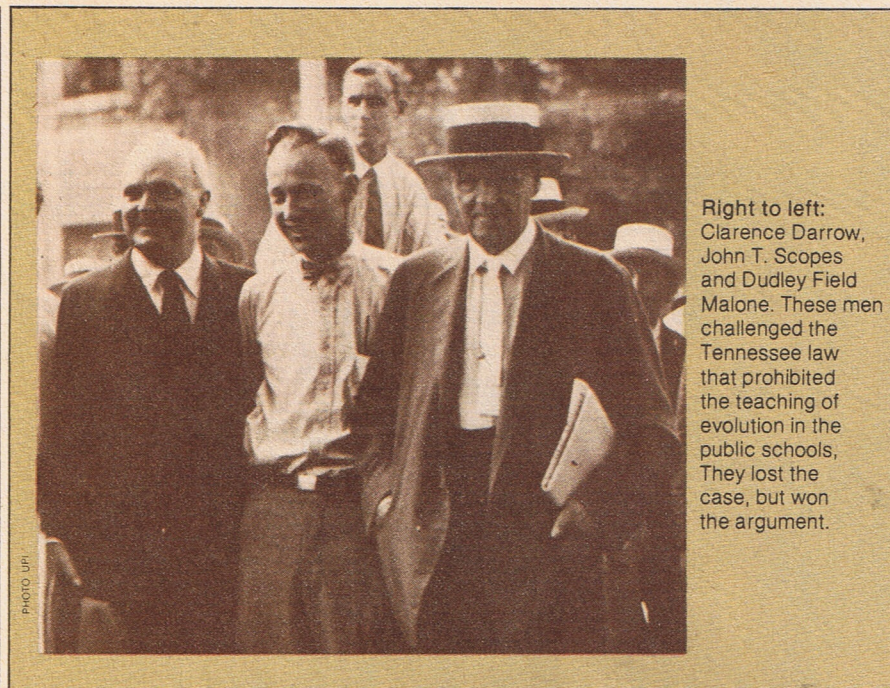
—The complexity of even a single living cell is so involved that it could not have possibly evolved through pure chance; but rather, must have had some sort of intelligence directing its creation.

—Evolution violates the second law of thermodynamics. (The second law of thermodynamics, in the words of associate professor of linguistics Catherine A. Callaghan—who is *not* a creationist—states that "all the free energy of a closed system can be converted into heat, but not all the heat can be converted back to free energy. . . . The biological analogue would be that closed systems change from a more organized to a less organized state through time." Therefore evolution, which states that complex life developed from more simple forms, can't be correct.

—The fossil record which is used to illustrate the workings of evolution is in-



"There's no way you can prove or disprove creation—because these have to do with things that happened in the past, and we can't get in a time machine and go back and see what happened."



Right to left: Clarence Darrow, John T. Scopes and Dudley Field Malone. These men challenged the Tennessee law that prohibited the teaching of evolution in the public schools. They lost the case, but won the argument.

complete, and in fact actually supports the theory of a sudden and non-evolving creation. "It supports creationism in the sense that there are no intermediate forms in the fossil," explains Dr. Morris. "The creation model says that there would be many varieties, including maybe some extinct varieties such as Neanderthal Man, but these were men and there were no intermediate forms."

—Many "non-creationist" scientists are now tacitly conceding the legitimacy of creation science by admitting that there are too many gaps in the fossil record to support evolutionism.

—There is no reason that creationism should not be taught since neither theory can be proved.

"The point we try to make," says Dr. Morris, "that I think can't be really negated at all, is that both of these models of origin, whether creation or evolution, are simply that—they're models or they're beliefs or they're frameworks within which we can correlate data. There's no way you can prove or disprove creation—because these have to do with things that happened in the past, and we can't get in a time machine and go back and see what happened. We can't repeat history. All we can do is take these basic frameworks and use these as vehicles for correlating and even for predicting data that we *can* see and test, and see which one does the best job of it. We maintain that the creation model does the best job of correlating and predicting data."

"It's true, I can't go back to the very beginning and show what happened at that point," answers biology teacher Jerry Resnick. "That's why they talk

about it as a theory. But we can show, for example, chemical evolution. In terms of the chemical evolution of amino acids, Stanley Miller was able to show that, given the precursors of the organic materials that are present here today, he was able to create amino acids, and scientists have gone to the extent of being able to create proteins through the conditions that were there for evolution.

"Creationists say that we can't go back to when the Earth was created and we can't know definitely. We don't claim to know definitely. We never said that. And that's the problem. If it's definite, then it's a fact. If you talk about fossils, if I pick up a fossil, I consider that fossil to be a fact. But the mechanism by which that fossil got to be a fossil, that is a theory."

Resnick is also Science Chairman of Sheepshead Bay High School in Brooklyn, New York, president of the Science Committee of New York City, and president-elect of the National Association of Biology Teachers. And he is emphatically not a creationist. In fact, he and colleague David Kraus sponsored a symposium on creationism and evolution in December, 1980, which featured such guest speakers as Isaac Asimov and Niles Eldridge, curator of the Dept. of Invertebrates at the American Museum of Natural History in New York.

"Creationism is *not* a science," Resnick says. "In my opinion, creationism really masquerades in the name of science, but basically its roots are fundamentalism, which deals in terms of religion."

Supporters of evolution theory, most of whom were formerly content to limit

their activities to the classroom and the laboratory, are beginning to publicly oppose the creationist movement, calling it an unconstitutional blending of church and state. In answer to such creationist arguments as those cited above, they point to the following:

—Nobody ever claimed that the simple cell just popped out of nowhere at random. The cell was the product of at least 500 million years of chemical evolution—some of which was demonstrated in the 1950s by Stanley Miller's experiments with the production of amino acids.

—Biologists point out that life itself follows the second law of thermodynamics quite neatly—food is converted into energy by the living system (e.g. the human body), which in itself slowly becomes less organized through the process of aging.

—Anthropologists point to such fossil forms as *Archaeopteryx*, which had a dinosaur-like frame and teeth and bird-like feathers, as examples of transitional forms of life. In addition, animals such as the modern horse have very well-documented fossilized ancestors which can be traced through radiometric dating.

—The theory of Punctuated Equilibrium, which creationists cite as an example of scientific backsliding, is actually one of two evolutionary theories (the more popular is called Gradualism). Proponents of this "new school of thought" believe that, instead of gradually evolving over billions of years, many species went through "growth spurts" followed by long periods of non-development. But they are not arguing the basic tenets of evolution. "Part of the confusion," writes Catherine Callaghan, "comes from the fact that a paleontologist would call a 50,000-year time period 'instantaneous.' Similar verbal conventions enable creationists to make evolutionists sound as if they doubted major premises in natural evolution, particularly when they are quoted out of context."

The war between the creationists and evolutionists can tend to become somewhat heated, and this has been seen in the debates which have been staged in various universities around the country, where representatives from such organizations as the Institute for Creation Research and from the pro-evolutionist scientific community have crossed verbal swords. However, scientists have become less and less willing to engage in such debates, protesting that, in most cases, the decks are stacked.

"Creationists are very creative, very intelligent people," says Jerry Resnick,

who has engaged in a few such debates himself. "They're also professional debaters—*professional* debaters. There is a skill in debating. And most individuals do not have this type of skill. They have the information, but they don't have the skill of debating. So that's one thing.

"The second thing is, we feel that by debating, we're giving credence, really, to something we shouldn't give that kind of credence or importance to. When you debate these individuals and you give them the media and newspapers and so on, you're giving them the kind of publicity that they want and need."

This publicity has led the creationist debate out of the realm of PTA coffee clutches and local school board meetings, and into the political arena. In fact, many representatives of heavily conservative areas are using the creation issue to prove their worth to their constituents. On August 22, 1980, then-presidential candidate Ronald Reagan addressed a meeting of an evangelical Christian organization. When asked if he thought evolution should be taught in the public schools, he is quoted as saying, "Well, it is a theory. It is a scientific theory *only*. And it has, in recent years, been challenged in the world of science... and is not believed in the scientific community to be as infallible as it once was believed.... I would think that also the biblical theory of creation—which is not theory, but the biblical story of creation—should also be taught."

Last March, two events, one judicial and the other governmental, brought nationwide attention to the campaign for "equal time."

In a court case entitled *Segraves vs. the State of California*, the director of the Creation-Science Research Center, Kelly Segraves, maintained that the religious freedom of his children (specifically his 13-year-old son, Kasey) was being violated by their being taught the theory of evolution without any accompanying explanation of the more theistic view of creation. This, Segraves said, confused the children and caused them to question their parents' teachings and authority. While the final decision of the court was not in itself very exciting—the judge dismissed the claim of religious persecution, but also warned against textbooks presenting evolution as a fact rather than a debatable theory—the case did bring a great deal of publicity for the creationist cause.

One of the basic methods by which many creationists hope to force reluctant school boards to mandate the teaching of creationism in science classes

"Creationism is not a science. In my opinion, creationism really masquerades in the name of science, but basically its roots are fundamentalism, which deals in terms of religion."

"A repudiation of evolutionary humanism and a return to true belief in God as Creator and Sovereign of the Universe is prerequisite to any real solution of human problems."

is through state legislation. While there are many bills pending, as of this writing only one has actually been signed into law—the Arkansas bill for "Balanced Treatment for Creation Science and Evolution Science," which is due to go into effect in September of 1982. This law expressly states that religious instruction is not to be included in the curriculum, but that if evolution is taught, then the views of scientific creationism must be taught as well.

As might be expected, the law has met with some opposition. On May 27, a suit to overturn the Arkansas law was filed by the American Civil Liberties Union on behalf of a group of 23 plaintiffs, including clergymen, teachers, parents and such organizations as the Arkansas Educational Association, the National Association of Biology Teachers and the American Jewish Committee. "The suit's objection," explains a spokesman for the ACLU, "is that you can't talk about creation without there somewhere being a creator, and a creator is an inherently religious belief. If it's a religious belief, it doesn't belong in the public schools."

And it's hard to deny the religious roots that support the creationist argument. "People who are intelligent enough see that, call it what you will, scientific creationism smacks of religion," asserts Jerry Resnick. "Supernatural external force—those are the key words. How else could you interpret it?" Henry Morris counters with, "This is not unique to one particular religion or denomination. There are creationist Catholics, creationist Jews, creationist Protestants as well as creationist Moslems. . . ."

However, in its activities as a scientific institution, the Institute for Creation Research has included not only college lectures and the publication of a variety of books and texts on creation science, but additionally has sponsored two expeditions to Mount Ararat in search of Noah's Ark and a weekly radio broadcast entitled "Science, Scripture and Salvation." In the January, 1981 issue of *Impact*, a newsletter put out by the ICR, Dr. Morris writes of the organization's future goals: "Its unique combination of commitment to creationism in every discipline, and simultaneous commitment to high scientific and personal integrity in all its activities, is a much needed emphasis in today's hurting world. However, our present activities, even expanded, will not be enough. A repudiation of evolutionary humanism, and a return to true belief in God as Creator and Sovereign of the Universe is prerequisite to any real solution of human problems, whether these problems are

personal, social or trans-national in scope."

In fact, many members of the movement see the teaching of creationism as a more serious thing than simply adding a course of study to the science curriculum of the public schools. A majority of creation science's proponents come from the fundamentalist Christian movement; and there are strong overtones in much of their literature of a group of people who are determined not only to bring equal time to the classrooms, but to save the souls of its children as well.

In an Action Manual put out by the Creation-Science Research Center, the chapter entitled "Why Both Creation and Evolution Should be Taught in Schools," reason number six reads as follows:

"Indoctrination in evolutionary theory conditions the mind of the child to reject the Bible as the Word of God, to doubt the existence of God as Creator, Lord and Master, and to reduce Jesus Christ to the status of a 'good' man, not a Savior. The child becomes convinced that there is no absolute standard of right and wrong, that 'truth' depends on what society and his peer group are currently accepting. This 'religion of relativism' is openly hostile to the absolute standards of truth, justice and morality set forth in the Bible."

Thus, the enemy has been clearly defined. Evolution, as the "religion of relativism" (or of secular humanism, which is also cited in many cases as the dogma supporting the teaching of evolution), is a corrupting influence on the youth of America, and must be counteracted by the forces of good, as represented by the creationist movement.

"There are groups who feel that this is the right time, because of the mood of the country, to return God to the classroom," explains Resnick. "They couch it in these words—that evolution is an example of secular humanism, which basically is an atheistic approach. And so what they're really saying is that, if you teach evolution, you deny the existence of God. I never denied the existence of God. Those of us who teach evolution never deny the existence of God. We never mention it, we never teach about God, we don't talk about God in the science classroom."

"I tell students in my class before I teach the unit on evolution that I believe that you accept religion in faith. That I am not here to deny what you have been taught at home, I am here simply to present a viewpoint of scientific theory, and all I'm asking you to do is keep your mind open to this viewpoint."

Kelly Segraves (left) and his son. Segraves is director of the Creation-Science Research Center, and claims that the teaching of evolution is a violation of the rights of children who are taught the biblical story of creation.

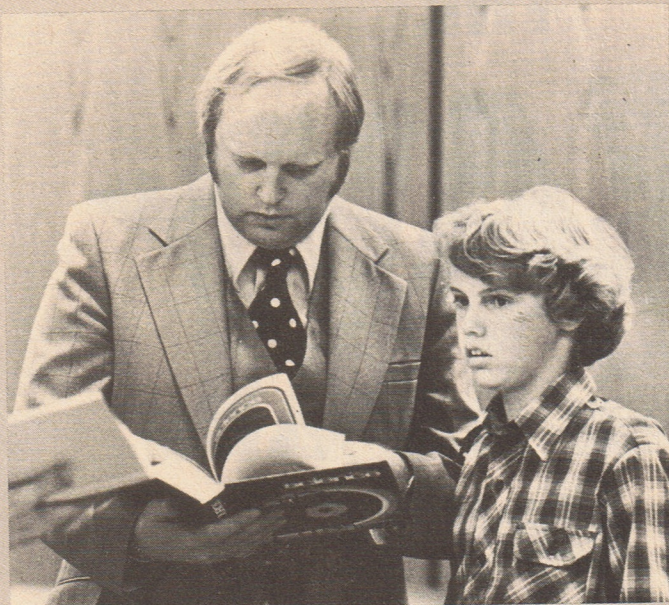


PHOTO UP

Caught in this battle of the theories are the students, who, many times, come up with their own solutions to the problem.

"In many cases," Resnick relates, "youngsters, in order to come to grips with this, say to me, 'Well, can't you accept, Mr. Resnick, that God set everything into motion and then your evolution has been proceeding along that way?' My comment is, 'If this is what you feel comfortable with and can accept, then that's what you must accept.'"

However, not everyone is so flexible. "There is a form of evolution called theistic evolution," says Dr. Miller, "which says that God in effect is an evolutionist; that He established the evolutionary process and that, as things evolve, actually somewhere behind all that God is supervising in some way. So that many people who are evolutionists also believe in God, and their belief would be theistic evolution.

"But that is not creation, you see. They might say creation by evolution, but that's confusing two terms that really mean opposite things. Evolution means development by continuing natural processes; creation has to do with completed natural processes."

In the end, no matter how one views the creationist movement, it must be conceded that its insistence that evolution be taught as theory rather than as fact has made the educational community look a little deeper into its own practices. Teachers are brushing up on their evolutionary theory, and making sure that they are presenting it as such.

In addition, we must remember that one of the freedoms that this country

stands for is freedom of religion—and the freedom to bring up one's children in the beliefs of one's choice. If a man or woman truly believes that God created the world several thousands of years ago, he or she has the right to instruct his or her offspring in that belief.

However, there is also a real danger when they attempt to indoctrinate other people's children in that belief as well under the label of equal time for an alternate theory—and, semantics aside, any theory which has as its bottom line the supposition that the world was created by an unexplainable, unexplorable "supernatural force" is religious.

The final role of creation and evolutionary theory in the science classroom was perhaps expressed best by Dr. Wayne Moyer, executive director of the National Association of Biology Teachers, at their National Convention on October 25, 1980:

"To be complete humans, we need both science and religion. The synthesis of the two has to be performed by each individual trusting his or her own good judgment. I respect the absolute right of creationist proponents to believe in the fallibility of scripture, and even envy them their belief that they are absolutely right; but I demand the same right for myself, the right to develop my own synthesis, my own theology, based on honest science and honest religion. To call theological dogma science and attempt to force it into science texts and in classrooms aborts the search for knowledge and weakens both science and religion. Pressed to the extreme, such a position can lead to totalitarian suppression of one by the other."

"To call theological dogma science and attempt to force it into science texts and classrooms aborts the search for knowledge and weakens both science and religion."

THE HEAVY METAL MOVIE

From the folks who pioneered adult fantasy comics comes an R-rated, eight-part, animated film with music from today's premier rock groups.

By ED NAHA

H *Heavy Metal* is coming! "And the world may never be the same," associate producer and production designer Michael Gross laughs. In a celluloid sense, Gross' humor may not be far off target. *Heavy Metal* is one of the most ambitious, audacious films to come down the motion-picture pike in a long while. Based on the popular comic-strip magazine of the same name, *Heavy Metal* is, logically enough, a fully animated feature. Adding to the uniqueness of the film, however, is the fact that it's divided into eight separate stories...each boasting an art style of its own. In Hollywood circles, this sort of approach is not known as a "sure thing."

At the time of this interview, Gross is less than a month away from the film's debut and is still in the editing room of one of the movie's Canadian studios. "Were we nervous about attempting this?" he reflects when the question is posed. "I'm *still* nervous about it. I'm terrified. My palms are sweating. I was just in the cutting room looking at a terrible problem. None of us has ever done this before!"

The *Heavy Metal* movie, headache though it may be, sounded like a swell idea to Leonard Mogul a few years ago. As publisher of the magazine, he reasoned that a solid science fiction fantasy film could not miss at the box office. Unfortunately, not everyone readily agreed.

Gross recalls, "I had been the art director at *National Lampoon* for five years and had worked at *Heavy Metal* as a consultant for their book line. When they began toying with the concept of a movie, I became involved picking the material, the artists, etc.

"The movie had a number of false starts. Universal has the first option on any *National Lampoon/Heavy Metal* projects. They saw our proposal and must have been afraid of animation. They said 'No.' Then we talked to 20th Century-Fox. It was looking very good there. Universal got interested at that point and negotiations got very complicated. Then Fox had a change in regime. Alan Ladd Jr. left and his supporters took off as well. The new people weren't interested. We had to start all over again.

"Len Mogul got in touch with Ivan Reitman, one of the producers of *Animal House*. We were looking for Canadian funding. Ivan raised money and became our producer."

The newfound Canadian connection necessitated some quick changes. The movie, which was to have been done in England, switched headquarters to north of the U.S. border. There were also some content changes.

"We came up with a new script," Gross says. "Ivan is very story conscious. One of his concerns was that the movie *not* have the look of an animation

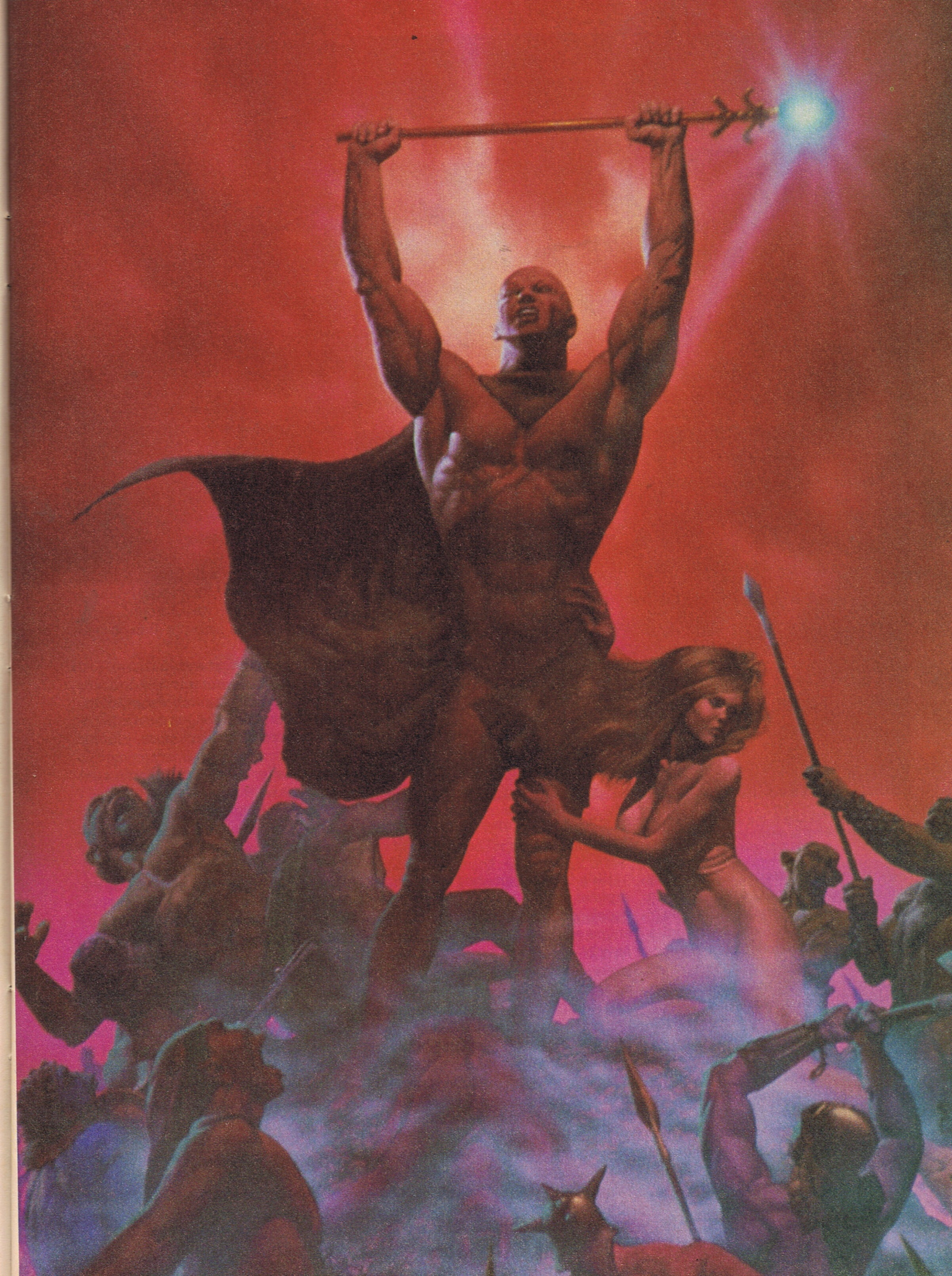
film festival, a series of shorts just stuck together. We had to come up with a deliberate storyline and have a linking concept that connects all the episodes."

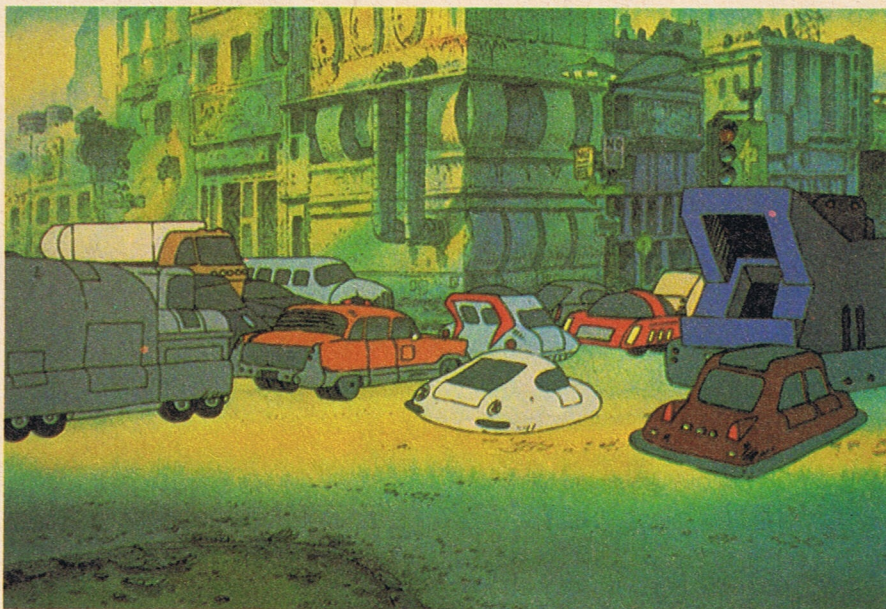
The new script included eight stories, ranging from two to 27 minutes in length. Both original ideas and concepts adapted from the magazine's pages made the final draft. The original efforts were *Tarna*, a sword-and-sorcery epic by Dan Goldberg and Len Blum; *Harry Canyon*, a futuristic mystery by Goldberg and Blum; and *B-17*, a tale by Dan O'Bannon (originally entitled *Gremlins*). Also on tap from the magazine's stockpile of stories were Richard Corben's epic *Den*; Angus McKie's famous *So Beautiful, So Dangerous*; Berni Wrightson's space comedy *Captain Sternn*; and Dan O'Bannon and Thomas Warkentin's spacey *Soft Landing*.

"We worked hard at nailing down the script," Gross says, "because the different elements are so diverse. *Harry Canyon*, for instance, is a mystery that takes place in the year 2025. Its star is a cynical taxi driver who works in Manhattan. New York in the future is an extension of what it is now. It's a little rougher and more broken down—busier. Harry gets involved with a beautiful girl and a group of unsavory characters who are in pursuit of a magical ball that has special powers.

"The ball makes an appearance in

Right: Richard Corben's original art for the movie's poster; taken from Corben's "Den" sequence.





Above: New York City in the year 2030, as depicted in the "Harry Canyon" segment. Below: "Den" coddles his large-breasted lover in the woods.

each of the eight stories. It's the thing that everyone is chasing after. We even worked in a surprise ending to the film."

With funding finally at hand and a distribution deal from Columbia Pictures in the works, *Heavy Metal* lurched to life. Comic book mainstays such as Corben, Wrightson, Neal Adams, Juan Gimenez and Mike Ploog were invited to work on the original art work along with noted science fiction/fantasy illustrators Chris Achilleos and Charlie White III. Their work was then adapted by such noted animators as John Halas, John Coates, Barrie Nelson, Charlie Downs, Michael Mills and Vic Atkinson. Animators from the 1980s school and veterans of the Disney studios sat side by side, working on visuals never before attempted.

"It's been an amazing experience," explains Gross. "There were about 450 people working on the film. As for key animators, on the Corben story alone we have 38. On *Harry*, we have 14 or 15. I guess we have 70 or 80 of them altogether.

"The animation has caused some major problems for us in that it's very tough, miles beyond anything you'll see on TV. The wonderful thing about it is that the animators, both the young ones and the veterans, have worked together as a family. They all believe in the material. The ex-Disney guys had a ball experimenting with stronger graphics. We've gone out of our way to make the film *look* different. We've added motion control and computer animation cameras to the creative process and have

wound up with some spectacular scenes.

"The structure of the film itself came back to haunt us, though. From the art standpoint, the difference between the individual styles of each story has caused some headaches. We've had to have them carefully planned in terms of transitions. I mean, you're going to be watching this movie on an emotional roller-coaster, going from stories that are funny to sword and sorcery to science fiction to horror. At the same time, you're going through distinct graphic changes as well. So far, I think we've managed to smooth over the dramatic visual changes. We've had a few screenings and no one has reacted negatively. They seem to be aware that each story requires a different visual touch. The style makes the story that much more interesting."

While Gross is happy with the results, he isn't about to gloss over the difficulties involved. "As production designer," he stresses, "my prime function was to see that if a story from the magazine was adapted for the screen, it was done well. If a story was an original, I had to find the designers to originate the look of the piece, then art direct every specific character design, the look of the background, that sort of thing. I had to approve every background, every layout that went into this film. It was rough.

"The adaption of well-known artists' styles onto the screen was very difficult. Richard Corben himself has had experience in animation, so he made the model sheets on all his characters for his story. Even so, in interpreting his characters for animation, they managed to change quite a bit.

"A single cell of the story may not look exactly like finished Corben art, but when you see it on the screen, you'll see that the action captures the *spirit* of the art. The *essence*, the *quality* of the different artists' work is up there."

The animators worked on *Heavy Metal* for over a year. According to Gross, there were no *major* problems. "We haven't had a big calamity on this film. From the beginning, we've always talked about the 'day's crises.' I mean, I don't have any wonderful anecdotes about the drawings that disappeared in the mail or the car that fell in the river with all our original art inside. I guess the worst thing that ever happened to me, personally, was finding myself on an airplane and forgetting where I was going. I travelled constantly between New York, Los Angeles, London, Montreal and Ottawa and I just blanked out from time to time. Oh yeah, I got mugged in London. Does that count?"



The land and city of "Den," as perceived by artist Richard Corben and later translated into animation. Says Michael Gross: "The essence, the quality of the different artists' work is up there."

Through sheer tenacity, Gross and his group of first-time animation producers got through the movie. In Gross' opinion, it was one of the few times wherein lack of experience paid off. "Our director, Gerry Potterton, has worked with animation before. But Ivan never has. That kind of producer has kept us from falling into a lot of standard animation traps. He treated the movie as if it was a live-action movie. As a result, it has that 'big' feel to it.

"It's written better than most animated films. It's scored better. It has four-point Dolby stereo with 40 tracks of effects. This isn't going to be like Hanna-Barbera's *Heidi*, which was cute and dull. This is a ground-breaking film. It's way beyond Bakshi."

Producer Reitman's insistence of treating this \$8 million animated feast for the eyes as if it was a straight production has forced the movie to avoid other genre cliches, such as using name stars for voices and slapping together a trendy sound track.

"We have Elmer Bernstein (*The Ten Commandments*, *The Magnificent 7*, *McQ*) scoring," Gross states. "He recorded the soundtrack with a 96-piece orchestra and a choir in a church. We didn't want ultra-modernistic music

because that would be a cliché. Bernstein is wonderful. He's done some of the greatest scores in the world. We've managed to use a lot of rock'n'roll in the film, too. We have people like Black Sabbath, Blue Oyster Cult, Tom Petty, Stevie Nicks (of Fleetwood Mac) and Devo.

"The voices are great too. We didn't go after name stars. We went after people who were good for the film. Some of the people we used were John Candy (*Second City TV*), Alice Playton (National Lampoon's *Lemmings*) and Harold Ramis (*Second City TV*), and one of the authors of *Animal House*."

With *Heavy Metal* now a reality, some three years after the initial concept was born, Michael Gross sees it as having an earthshattering effect on the movie community... if it doesn't lay down and die at the box office. "There's still a lot of risk involved," he concedes. "We're going to have to appeal to an audience larger than the standard animation audience if we're going to survive. Hopefully, we'll attract a science fiction audience as well as what the business calls 'the movie-going audience': the 17 to 25-year-olds who aren't afraid of going to see an 'R' rated movie and have a lot of fun.

"We're going to have to reach out to that audience to stay alive. We're going to have to give them a lot more than what they're used to getting from animation. *Heavy Metal* is not a cartoon. It's a full-length, animated movie."

Caught up in his evaluation of the film, Gross readily embellishes. "I'd like people to think of it as being a *phenomenon*. I hope, I believe, that people will be making references to this film as a turning point in screen animation for years to come. Animation isn't going to be the same for a long time after this film. It's unlike anything you've ever seen before."

Hovering closer to Earth for a moment, associate producer Gross mulls on what the success of the film might mean to him, personally. "Well," he says, "the studio will know if they want a sequel within two weeks of the movie's release. I think we'd all be more than willing to do it."

Taking off into orbit again, he continues, "I think we'd make a *better* sequel, too. As good as this movie is, we've learned a *lot* while making it. We'll make the *next* one even *better*."

As an afterthought, he adds, "I'd love to see this evolve into a series of films that will appear for a long time." □

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STARLOG magazine is pleased to make available a limited edition of fine art prints. THE MUTANT WARRIOR and SHE OF THE SWORD are both printed in brilliant color on fine gallery stock. These breathtaking forays into fantasia originally sold for \$25.00 a piece. They are now available for ONLY \$18.00 EACH plus postage.

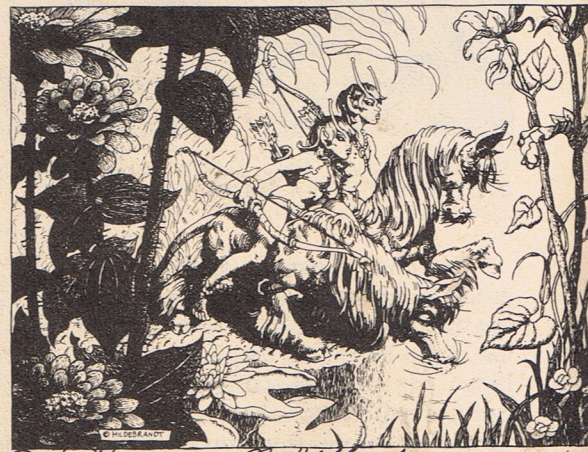


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The Third World Space Powers

Back in July, 1979, I predicted in this column that by 2005 a number of today's Third World nations would take the lead in forging the complex of space factories, lunar and asteroid mines, and space habitats that we dream of. Why? Although these countries don't have great universities, big GNP's or massive industrial facilities (yet), some of them, at least, have something far more important: guts and vision.

I have to admit I was wrong. Some Third World nations are advancing far faster than that.

India's Dr. Rashi Mayur, director of the Bombay-based Urban Development Institute, for example, has been captivated by the dream. Recently, in a letter to Ronald Reagan, he reported that India's government has allocated 120 million rupees (\$15 million) to examine solar power satellites. As Mayur explained to Reagan, "... This concept offers a more viable and permanent solution to one of the crucial problems of our age," adding that power satellites "will lay a new foundation for a peaceful world with abundant energy."

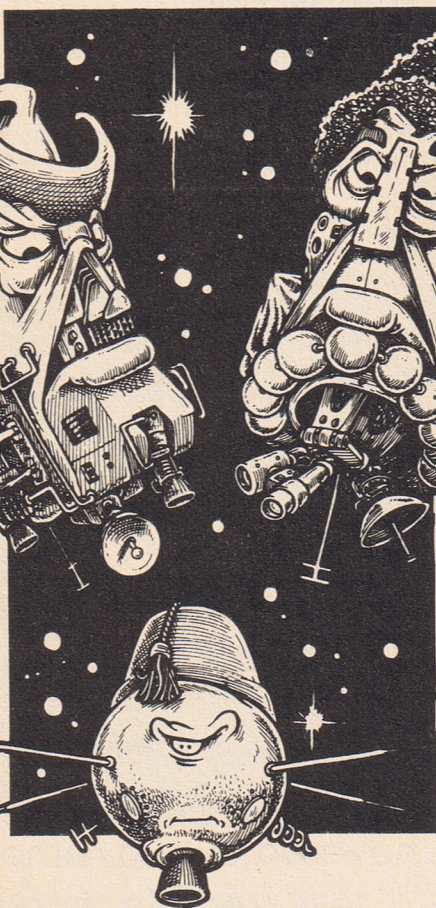
Fifteen million dollars is equal to the total U.S. funding for power satellite research over the last three years. And how much is Ronald Reagan planning to spend on it? According to program director Fred Koomanoff, "We don't expect any more money until at least fiscal year 1985. Right now I'm just putting all our papers in order. Maybe we'll find a good university that will keep the records of our research until when and if the U.S. ever starts up the program again."

"Why," I asked Fred, "are we throwing in the towel on power satellites?"

"Our country just isn't willing to take a risk any more. The U.S. doesn't want to buy into the future."

How embarrassing! Only 1981 and already India has taken the lead in solar power satellite research.

The fundamentalist Islamic nation of Libya is making its move too. On March 1, 1981, the privately held OTRAG company (a West German-based space con-



cern) launched a suborbital rocket from Libya's Seba Oasis, about 500 miles south of Tripoli. They plan to orbit a two-stage vehicle before the end of this year.

OTRAG's last successful launch flamed into the sky from Zaire's Shaba province on May 17, 1978. Not everyone was pleased. Soviet and East German-financed General Nathaniel Mbumba announced that OTRAG was "a serious and permanent threat to the heart of Africa," and led his band of Angolan troops in a drive across the border into the Shaba province. Fortunately, his poorly disciplined soldiers only made it to Kolwezi, 150 miles from the rocket base, before Zaire repelled them. But Zaire's thoroughly unnerved president, Mobutu Sese Seko, reacted by closing the launch site.

That setback could have finished OTRAG. However, its team of West German rocket engineers and 1,500 stockholders wasn't fazed. Rather than let their \$40-million investment go down

the drain, they raised another \$25 million and went shopping for a gutsier host. Libya strongman Muammar Kaddafi accepted the challenge.

Why has OTRAG become such an international hot potato? Is it because, as *Penthouse* magazine and *60 Minutes* have claimed, OTRAG might sell launch facilities and nuclear missiles at bargain-basement prices to tin hat dictators? (The U.S. and Soviets, of course, only base their nuclear arsenals in nations with long records of impeccable behavior.)

But there's more behind this uproar than the fear that OTRAG could bring major powers-style armaments to the Third World. A major factor is that today's major space powers use their space capabilities as tools to control the less-developed nations. Take, for example, surveillance satellites. Doesn't it make sense to let *everyone* see what's in those photos? No nation could ever again launch a sneak attack.

But the way it works today is that if a country's leader suspects some crazy over his borders is planning mayhem, he has to go dicker with the U.S. and Soviet ambassadors for rights to see satellite photos of the neighbors' troop movements. The U.S. ambassador will put the screws on to get that okay for a submarine refueling base, while his Soviet counterpart will remind the worried leader how handy a few battalions of Cuban advisors would be. By the time a deal has been struck the border has probably already been overrun by troops.

Senator Adlai Stevenson, who headed the Senate Science, Technology and Space Subcommittee until his retirement last fall, recognized this problem. He tried to get Carter to launch what he called the "Satellites for Peace" program to provide surveillance photos for all nations. Not surprisingly, the concept died. Why should the U.S. give up a powerful bargaining tool for such an unimportant cause as world peace?

But OTRAG is promising to sell the launching of surveillance, Earth resources or communications satellites

(continued on page 49)

The Stranglers: The Men in Black Rock Out (And Up)

UFOs and rock'n'roll aren't subjects that often go hand-in-hand. When they have been stuck together the results have been so invariably drenched with lampooning humor (remember "The Purple People Eater"?) or self-consciously unserious looniness (the B-52's), that it would seem no one in the rock world thinks that the possibility of extraterrestrial visitation deserves anything more than a snort of derision. Not so the Stranglers, a group of veteran British rockers whose latest album, *The Gospel According to the Men in Black* (Stiff Records, USE 10), packs a number of surprises in its deceptively rock'n'roll disguise.

First off, there's the oddity of the subject matter: the confrontation between the UFO phenomenon and our rigidly controlled, religious belief systems. Surprise the second comes from the fact that this is the Stranglers talking to us, a band previously (and quite unfairly) maligned for their mindless, supposed obsession with gutter-wallowing, misogyny and general obnoxiousness. Personally I've always liked their attitude (but then, I also torment small children), but beyond that off-putting facade there is much more to the Stranglers than most rock writers give them credit for. Ever since their third album, *Black & White*, was released in 1978, the band has courageously pushed outward, beyond their basically traditionalist beginnings into the commercially uncertain territory of introspective experimentation; always retaining their charming, ever-accommodating "fuck you" attitude that has so endeared them to the public. What makes *The Men in Black* itself a further departure from the already zig-zag course of previous Stranglers LPs is that it is once again structurally traditional (song oriented), while musically divergent (Dave Greenfield's elegant keyboard work occupies center stage), and emotionally drained (not a snarl in sight!).

I tracked down their bleary-eyed drummer, Jet Black, to a sleazy hotel coffeeshop during their most recent American tour, in search of the scoop on this enigmatic bunch. "Yeah," he admitted to me, "the album is sort of pas-

sive. It's a reflection of the strange sort of year it's been for us, I think—in and out of jail [for inciting a riot during a gig in France], experiencing serious financial trouble, and getting fucked about by almost everybody we were connected with. *Men in Black* was made during a time of rebirth for us, and the feeling it has says that, I think."

What's all this about UFOs and "The Men in Black" then, eh? "Well," Mr. Black responds, "the album covers a number of stories, each dealing with a different aspect of the UFO idea. The songs 'Waiting for the Men in Black' and 'Just Like Nothing on Earth' are based on actual sightings. The latter number is about a contact in Welling-

"... the idea that the three kings followed

a star to Bethlehem, and that the star hovered over a remote stable, seemed far less credible than that the star was in

fact some sort of flying machine..."

ton, England, which Hugh (Cornwell, Stranglers' singer/guitarist) and I decided to go check out after we heard about it. Wellington is this very eerie corner of western England, very hilly. We took along video cameras, recording equipment, and we literally spent the night UFO-hunting on the hillside where the sighting occurred. Unfortunately, we saw nothing, but it did set the scene for the song. It was very strange, up on this high hill from which you can see miles and miles. It was deathly quiet up there; the wind built up, and then suddenly it was quite foggy. We kept thinking we could hear strange noises and see lights in the sky—in the end we were quite literally seeing things. All in our imaginations, of course.

"This part of England, you see, has had more UFO sightings than all other parts of the Western World combined. There are clubs that go UFO-spotting there every day of the year, all night

long, keeping a kind of vigil. Now, I used to be very skeptical about all this—although very interested—until I started thinking about the religious ideas involved. I came to the conclusion that everything we've been taught to believe by popular religion is fundamentally wrong and totally illogical. Then I started taking a keener interest in the UFO phenomenon; the idea that the three kings followed a star to Bethlehem, and that the star hovered over a remote stable, seemed far less credible than that the star was in fact some sort of flying machine. It's totally illogical to assume that the Almighty would send a star to guide someone to this place to be brainwashed. I found more and more logical, alternative explanations of religious stories from evidence that we've gotten since from people's experiences.

"Two years ago I actually saw a UFO, and I'm now totally convinced that the wool is being pulled over people's eyes. I

can't describe exactly what I saw, because it was just a very, very bright light. I was in the countryside of England, looking out my window at three o'clock in the morning, just before going to bed. I had an unobstructed view of the sky, and I was saying to myself how beautiful it was as I shut off the lights. I was marveling at the view, the sort of sky you can only see in the country, when my attention was drawn to one star which was the brightest in view. All of a sudden, I realized it was getting bigger—like it was coming nearer to me. I rushed outside, and watched as it continued to get brighter, running back and forth to get some perspective on the distance. I live not too far from a couple of military air-



these guys). It succeeds both as music that—despite the requisite fragmentation of a film soundtrack—stands on its own (especially the sections containing Edgar Froese's gut-wrenching guitar work, reminiscent of Pink Floyd's *Wish You Were Here*), and also as a sonic accompaniment to director Michael Mann's modern film-noir vision. In the stunning opening sequence, James Caan's forced entry into a safe (lovingly, almost pornographically, photographed) is complemented on the soundtrack by an evocatively woven fabric of liquid melody and grinding, machine-like noises. It's one of the best fusions of image and sound in film (it's called "Diamond Diary" on the LP).

From Oklahoma City comes Cosmic Debris, a synthesizer-dominated trio whose ideas of layering improvisation over a rhythmic skeleton owe much to Tangerine Dream. On their self-titled debut album (released on the band's own Non Compos Mentis label), drummer Joel Young provides a fairly rigid jazz-rock structure for synthesist Richard Bugg's tonal explorations and guest-guitarist Shawn Phillips' (a singer/songwriter of some reputation a decade back) melodic buttressing. Rather too linear for my tastes, though the slow-built climax on side one packs a good punch, and Bugg's flute work on side two adds some much-needed textural contrast. I look forward to something more adventurous from Cosmic Debris in the future—the potential certainly is there. (Send \$7.98 for the LP to: 2703 N.W. 20th, Oklahoma City, OK 73107.)

In more independent label activity, Northern Virginia's New Decade Productions opens up shop with an impressive single by Jim Altman's Scandals, "Decisive Moment"/"Lady Lost in Mirrors." Like Cosmic Debris, Altman draws much inspiration from the mid-'70s progressive rock sensibility—in his case, bands like King Crimson and Genesis. Altman shows a mature grasp of fluidly romantic melody and concise song structure, offering an excellent beginning. He could be someone to watch. (Send \$2.50 to: 1014 North Tuckahoe St., Falls Church, VA 22046.)

The occupants at Ralph Records have been up to their usual tricks, this time releasing in the space of a month one of the most beautifully subtle and emotionally

fields, so I know all the usual excuses of a helicopter landing or a hot-air balloon, and that sort of bullshit. No way was it any kind of conventional flying machine—I've seen enough of those to know the difference. It was a constant white light, very stable, getting brighter and brighter. It got to what I would estimate to be about two or three miles away, and then stopped, hovering over the trees in the distance. I was still trying to make out the form, but it was only like a bright, white tennis ball. It stayed where it was for about a minute or two, then shot up higher, stayed there for another couple of minutes, then dropped down slightly and zoomed off out of sight. I know to my satisfaction that it was some sort of flying machine, a UFO."

What does he make of all this? "I think we're definitely being watched, been visited, and all that. We're not alone. I don't really know what it all means, and I do want to know. The prevalent attitude in the press has been tongue-in-cheek, so naturally popular opinion is that it's all bullshit. This line of thinking

is encouraged by governments who don't want people to know they aren't in control. But something is going on, and they are definitely trying to suppress it. People are afraid of the unknown, deeply suspicious of things they don't understand. We're just trying to make them open their minds a bit, and think for themselves." Not a bad idea at all.

Recordings

Tangerine Dream, long-time cornerstones of the synthesizer vanguard, recently moved into their second decade of audio-electronic activity with the release of their fourteenth album: the soundtrack they composed and performed for the film *Thief* (Elektra 5E-521). Those familiar with the German trio's past work won't find anything surprising on this LP, as the basic sounds and musical structures employed by the band echo their previous recordings. Despite the lack of the exquisite tension that so riveted their first soundtrack effort for William Friedkin's 1977 *Sorcerer*, I found the album quite enjoyable (though admittedly, I'm a sucker for

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expressive albums I've ever heard, along with yet another of their contenders for the Weirdest Record on Earth competition. Tuxedomoon's second album, *Desire* (TX8104), strikes an effortless balance between visceral beauty and depth of emotion, a true rarity in today's tunnel-vision, over-categorized record industry (no one's ever accused Ralph of following anyone's rules). Tuxedomoon's strengths lie in their artistic flexibility (the band is an umbrella operation for a group of visual, musical and conceptual artists built around a core of three instrumentalists), openness to a

across as something of a Kraftwerk-Talking Heads hybrid, orchestrating their lyrics of consumerist outrage and confusion against a tense backdrop of sparse, jerky, electronic rhythms. Another interesting insight to modern culture from the Eastern perspective, quite different from that offered by the Yellow Magic Orchestra (profiled in *FUTURE LIFE #27*), whose latest is *BGM* (A&M SP-4853). YMO's records emerge as nothing so much as field trip reports registered by the trio after their forays into the world's pop music jungle, and their latest world tour/ethnomusicological expedition seems to have done wonders for them. *BGM* is without doubt their best vinyl effort—it's a more mature distillation of influences and ideas, with some genuinely expressive pop songs ("Cue") comfor-


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idea what Renaldo

& The Loaf are up to. Their *Songs for Swinging Larvae* debut is by far the most alien collection of music released on this reality level in recorded history.

variety of influences (their music combines elements of film music, rock, electronics, avant-garde classical and pure, unclassifiable sound), and a grasp of the gut-level, non-verbally communicative powers of music and sound. *Desire*—unquestionably one of the best albums of the year—evidences an ambitious advance from *Half-Mute*, the band's first effort, and marks Tuxedomoon as a group with a unique conception of the interface joining sound and image. On the other hand, I have absolutely no idea what Renaldo & The Loaf are up to. Their *Songs for Swinging Larvae* debut (RL-8108) is by far the most alien collection of music released on this reality level in recorded history. Heavily influenced by fellow Ralphoids, The Residents, Renaldo & The Loaf mercilessly mutilate the sounds of their voices and a bizarre array of noise-making devices into an often hilarious, more often bewildering musical experience. Not for the faint-hearted, but a definite asset in the cause of insect-human relations. (Ralph records are available at better record stores, or by mail from: 444 Grove Street, San Francisco, CA 94102.)

While Japan's Plastics might also qualify as aliens, at least they're still part of the human race. On their American debut (Island ILPS-9627), they come

tably sharing space with more socially adventurous, electronic experiments ("Happy End" and "Loom").

And finally, we come to the long-awaited return of the Kings of the Robot Rhythm themselves, Kraftwerk. *Computer-World* (Warner Bros. HS-4539), their first new recorded work in over four years, picks up right where their influential *Man-Machine* left off, sharpening even further the crystalline edges of their patented electro-rock. The technical mastery displayed in Kraftwerk's sheer clarity of sound and conceptual precision is unmatched anywhere on Earth. They were the first, and based on this, they're still the best. Word over the wireless from Dusseldorf has it that the boys have been busily converting their Kling Klang Studio into a self-contained, mobile performing unit, in preparation for an imminent world tour. What is unclear at this juncture is whether they will be making the trip themselves, or sending a quartet of simulacra in their place. And further, whether any of us will be able to tell the difference. 

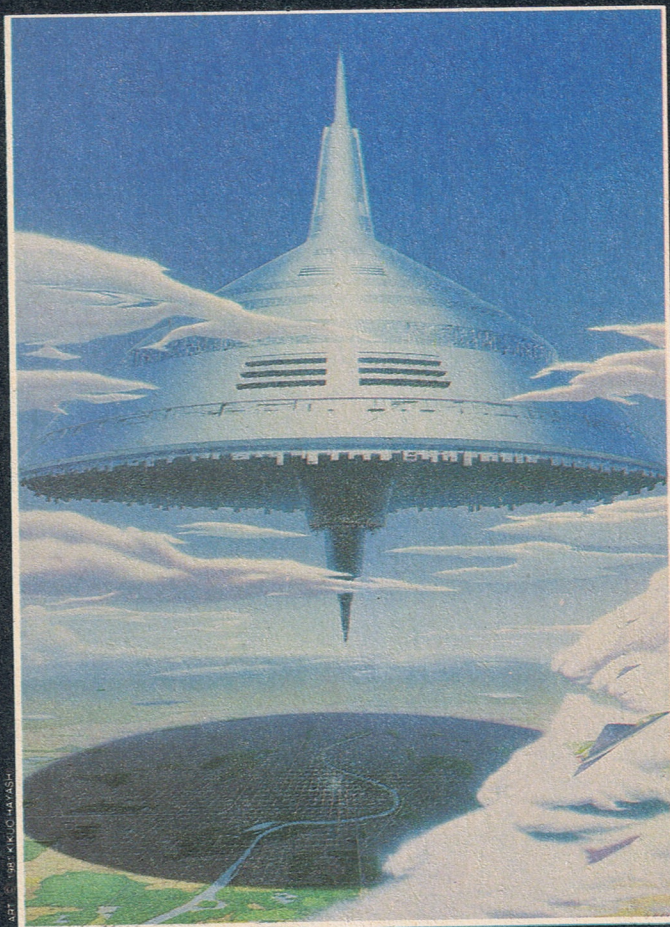
• GALLERY •

Kikuo Hayashi

"My biggest hobby is to make paintings that reflect my love for science fiction," says Kikuo Hayashi, the artist whose work is featured in this issue's Gallery. "Some of the paintings I do reflect my own stories, and others are my interpretations of SF books."

Hayashi, who works as an industrial designer for a small design consultant firm in California, was born in Tokyo, Japan, and has been living in the United States for about 20 years. He attended the Art Center College of Design in Los Angeles, and now spends most of his time designing the exteriors and interiors of vehicles such as cars, trucks, farm and garden tractors, and motorcycles. His spare time, however, is dedicated to his real enthusiasm: science fiction art.

"Eclipse" (above) is an illustration for one of Hayashi's favorite science fiction novels. "It is my inter-



pretation of the opening of *Childhood's End* by Arthur Clarke," he explains. "One day, a giant spaceship stations itself above a town. The view of the spaceship shows its vastness—maybe 30 miles tall and wide as well. The people of the town see the sun eclipsed. Air force jets are up there to investigate, and the point of view of the painting is from

one of those jets."

His painting "Visit" (centerspread) had an interesting conceptual beginning. "I decided to make my own Christmas card with an SF flavor," Kikuo remembers. "The three astronauts correspond to the three wise men of the Biblical episode. As the astronauts returned to their moon landing module,

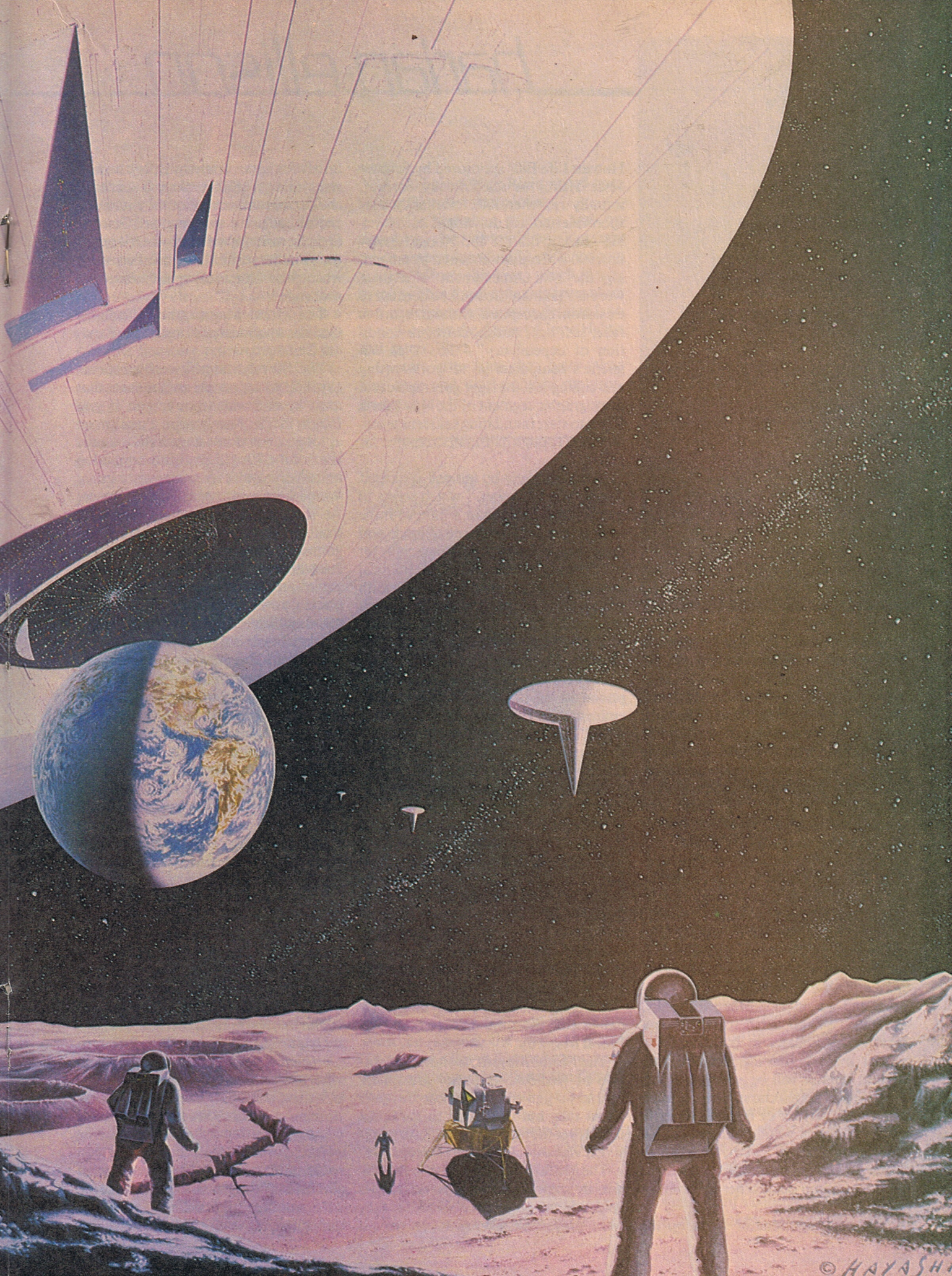
they saw a bright star beyond Earth. It grew larger and larger and it turned out to be a giant spaceship."

It was the success of this painting which has inspired Hayashi to think about marketing his art. "When I finished this painting, I changed my mind [about making it a card] and left it on the wall of my office. People who saw the painting started asking me for copies. One day, my cousin who was visiting me from Japan during summer break suggested making posters from it. For this reason, I am very much interested in making my paintings into posters before I decide on selling them."

However, for the 39-year-old Kikuo Hayashi, the art itself is the most important thing. "I really do not know what attracts me to these monster machines," he says, "but probably I am trying to portray how small mankind is against the unknown in this vast universe." □

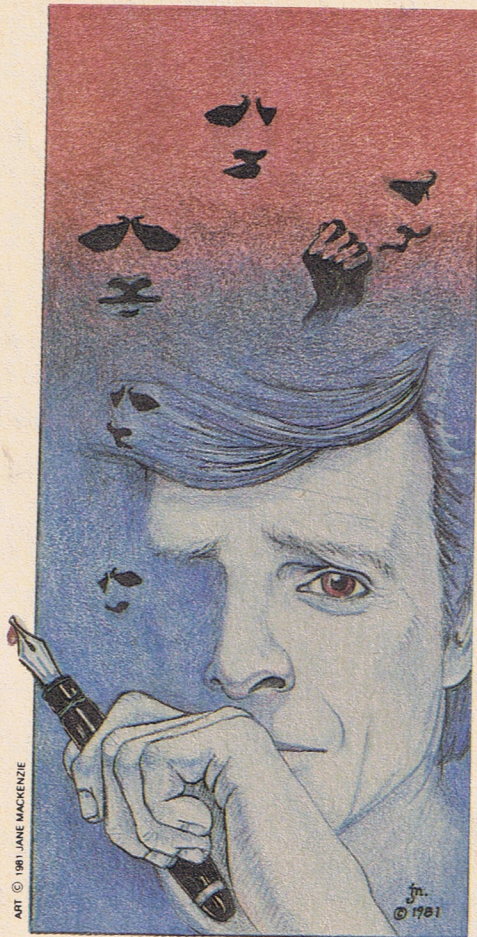
Centerspread: "Visit" © 1981 by Kikuo Hayashi





harlan ellison

AN EDGE IN MY VOICE



ART © 1981 JANE MACKENZIE

So there I am last April 21, round about midnight, sitting in the studios of radio station WMCA in New York, doing "The Candy Jones Show" with a dude named Richard Viguerie. Jot the name on the slate of your brain. Mr. Viguerie has made millions with a direct-mail operation that circularizes advocates of the aims of The Moral Majority. If your local school board currently sports a couple of whackos who want to pull *Catcher in the Rye* or *One Flew Over the Cuckoo's Nest* from the library and you enlist the aid of your senator to put pressure on the rest of the school board not to bow to pressure from the narrowminded and subliterate, all the whackos have to do is get in touch with Mr. Viguerie's Committee for the Survival of a Free Congress and—as in 1978 when the CSFC spent over \$400,000 to help elect 31 conservative candidates in both houses—within mere hours the desk of that hapless senator will be a veritable Sargasso Sea of apoplectic screeds accusing said public servant of being a perverter of the young, a willing handservant of the pornography cabal, a crypto-Commie and an individual who would, no doubt, pimp out his/her children for a few filthy pfennig.

If your senior senator looks on the

Human Life Bills sponsored by Senator Jesse Helms as scientifically corrupt, morally reprehensible, criminally irresponsible and just downright unenforceable—Senate Bill 158 and House Resolution 900 will outlaw abortion by amending the 14th Amendment with these words: "Human life shall be deemed to exist from conception, without regard to race, sex, age, health, defect or condition of dependency"—then Dick Viguerie's computers go to work sorting and culling just the right geographic and demographic segment of the New Moral Right to start inundating said senior senator with enough hate mail to repaper his office.

Mr. Viguerie, who has called himself "politically Christian," which seems to me to fudge more than a little with the idea of the separation of Church and State, has grown slick and financially fat by bringing to the arena of political demagoguery a wizardly wiliness with the ways of microcircuitry that makes the special effects of George Lucas look like Edison's earliest experiments with tungsten filaments.

So there I am, sitting behind a microphone on WMCA, with this great gray eminence of the New Anal Retentive Right, and he is crowing about how these conservative activists are something new, something fresh and original.

And I cut in on his self-aggrandizement by saying, "I beg to differ. The New Right isn't original; we've had its like at least once before. Except that time they called it The Spanish Inquisition."

Candy Jones told me, after the program, that WMCA's computerized phone system logged in over 8,000 calls waiting to be heard; far and away the largest number of call-ins the show had ever experienced.

Bringing me, at last, to my closing remarks (for the time being) about The Moral Majority.

The Moral Majority abhors sex outside of wedlock. But they are solidly behind no gun control. Not to be crude about this, but they want to make sex illegal, yet they don't mind if every self-styled vigilante packs a .357 magnum.

The Moral Majority wants sex education in schools abolished so the herpes epidemic can go on unchecked, yet they want prayers in schools to be reinsti-

tuted. Religious training is, to them, a state matter, rather than a parental choice; but sex education is a parental choice but not a state matter. Government intrusion is welcome when it serves their Fundamentalist ends, but *verboten* when their bluestocking prejudices are challenged.

The Moral Majority really believes God has a political position on the Panama Canal.

The Moral Majority really believes gays and young people are a menace that must be met with stern action. If you fought in Viet Nam you're a patriot... as long as you don't stage a sit-in on the lawn of the VA Hospital and demand to know why you're rotting away or going insane from exposure to Agent Orange. At that point you become a freako troublemaker. If you're a woman who got raped and knocked up and want the fetus aborted, well, that's sad as hell, sister, but your womb has citizenship according to Herod Helms and his senatorial nightriders, so have the kid, even if it's born without a nose...and shut your mouth, bitch.

According to Judith Krug, director of the Office of Intellectual Freedom of the American Library Association, attempts to censor books in the nation's libraries have more than *tripled* since last November's election of Reagan. "We had been averaging over the past several years three to five reports of attempted censorship a week," Ms. Krug said in an interview with *Publishers Weekly* (2/20/81). "The first two weeks of November, there were about that number per day."

So if all of this about which I've written for three installments scares the beejesus out of you; if the fact that over \$16 million worth of advertising has been pulled from television shows *rumored* to be on The Moral Majority's forthcoming hit list; if you cannot believe lunacies such as that contained in a letter to *Christian Life* magazine by a woman who wrote ecstatically that her six-year-old daughter was "born again" after hearing Lynda "Wonder Woman" Carter's "testimony of faith" in the March 1980 issue read to her; if you stand dumbfounded when Secretary of the Interior James Watt tells a Senate subcommittee he doesn't feel any guilt about denying future generations all the

parklands he wants to pave over and condo-ize because, "We don't know how many future generations there'll be before the coming of the Lord, anyhow"; if you wonder what the hell pinstriped Jerry Falwell is doing out in Louisville, Nebraska, with his 33-member, squeaky-clean "I Love America Singers," putting up the money to back a church school that refuses to comply with the licensure requirements of the Nebraska State Department of Education, and telling his audience, "We're here to stay! You [meaning the government] can't control us"; if all of this seems ominous as a cancer specialist suggesting you stop into his office to discuss your biopsy report... then I urge you to jot another name on the slate of your brain.

The name is Norman Lear.

And he personifies the philosophy that the only reason to become famous and rich and powerful in these parlous times is to use that fame, wealth and power to help make this a slightly better world in which personal freedom as a concept is not perverted to the debased uses of an unholy alliance of TV evangelists, amoral politicians bent on climbing higher, direct-mail hustlers, milk-the-ignorant fund raisers, hate-spewers, gun-lovers and sociosexual repressors. He is a man who very clearly sees the dangers to *all* of us in the twisted coupling of Fundamentalist crackpots and amoral politicians.

Norman Lear has caused to be born an organization that answers the question we all ask: what can *I* do? The organization is a non-profit, tax-exempt entity called PEOPLE FOR THE AMERICAN WAY. It's on line already, it's working, it's in Washington and it's a clearinghouse, fighting-mad organization that is dedicated to taking back the American flag from the direct lineal descendants of Cotton Mather and Father Coughlin and Senator Joe McCarthy.

Here are a few facts that explain *why* People for the American Way *had* to come into existence today:

Religious broadcasters now own over 1,400 radio and TV stations outright. In addition, hundreds of hours are purchased weekly by electronic ministries on independent secular stations. They reach over 130,000,000 Americans

weekly.

The Religious New Right raised over \$150 million last year alone.

They're spending millions not on preaching, but on politics—just one group reports spending \$3 million on its political efforts this year, which is why so many liberal and humanistic senators and congresspersons were defeated, to be replaced by the clones of Jesse Helms and James Watt.

In state after state they have taken over state and local political party organizations.

If you're a woman who
got raped and knocked
up and want the fetus
aborted, well, that's sad
as hell, sister, but your
womb has citizenship according to Herod Helms
and his senatorial
nightriders.

They have organized powerful lobbies in Washington, in State Capitols and in City Halls.

They've distributed "moral report cards" telling their followers which politicians are "good" Christians and which are not.

In order to be a "good Christian" and a "good American" you must not differ with their opinions. (Even as conservative a politician as Barry Goldwater has said that they're terrific if they're on your side, but if you cross them... look out!) You *must* believe in increased military spending; *must* support Taiwan; *must* be against the Panama Canal Treaties, the Equal Rights Amendment, abortion, teacher's unions, the Department of Education and the SALT II treaty.

So if you feel frightened, and you want to do something, the address for People for the American Way is 1015 18th Street, NW, Suite 310, Washington, DC 20036.

Write them for literature and let them

know of encroachments on your personal freedom in your area; like the kid from Bridgman, Michigan, Richard Hernandez, who wrote me that his short story in the Bridgman High School's newspaper, *The Beeline*, was banned because he used the words "God" and "damn" in juxtaposition. He didn't write *God damn*, or *goddam*, he only wrote "Oh, God—and damn!" And when he objected to this petty censorship in his capacity as editor of the paper, in a special editorial... the editorial was banned.

It's not just the principal of Bridgman High, it's the frightened, running-scared, Spanish Inquisition tenor of the times. And maybe People for the American Way is the first line of defense for all of us who are not joiners, who feel acutely that we must *do* something, but don't know where to go to do it.

And trust me that you *can* do something. You are not as helpless, as much a pawn, as they would have you believe. Each of us can effect change. (Remind me sometime to tell you how Leonard Nimoy and Carl Sagan and naturalist Arnold Newman and some dedicated men and women and even I saved an entire ridge of paleontological goodies just last week here in Los Angeles.)

You *can* move the world. You *can* be Zorro.

And for the three—out of several hundred—readers of this column who wrote me suggesting that this protracted outtake on the Moral Majority had no place in a magazine called FUTURE LIFE, I tag off with merely these two bits: If it's inappropriate to discuss that which affects the future life of all of us, then perhaps you agree with James Watt that there may not be many more generations before the coming of the Lord.

And ultimately, this quote from Ralph Waldo Emerson.

"The religion that is afraid of science dishonors God and commits suicide."

Take *that* Creationists!

SHORT BITS: I *promise* next issue to go into a discussion of knife-kill movies, the one I promised for this time.

I *promise* to go into detail on the subject of "mind-dribble fantasy," issue after next.

Get hold of a copy of *A Field Guide to the Atmosphere* (Houghton Mifflin,

\$13.95) and check out the color photos. One in particular shows a cumulus cloud formation that, so help me, is a dead ringer for the flying saucer from *Forbidden Planet*. Show it to those who assure you they saw a saucer. But hide the explanation of what it is under the photo. Let them run amuck at this "proof" of the existence of UFOs... and then whip it on 'em. Heh heh.

Rebecca Ann Brothers writes to alert us to the existence of a new cult. The "Galacticans." Not just fans of that TV show-that-shall-go-unnamed, but people who have constructed a quasi-religious cult based on concepts presented in the show. She assures me she's not making this up, that a close friend of hers has been swallowed up in the cult. Terrific. Jonestown claimed the lives of over 900 innocents, duped and led to slaughter by a failed evangelist. Scientology became a church based on the snake-oil psychology of an ex-pulp magazine writer. Half the world burned and died because of the cultish blandishments of an unsuccessful paperhanger. And now the idiotic ripoff of *Star Wars*, foisted on the TV-viewing audience by quickbuck entrepreneurs, becomes the basis for yet another cult. Glen Larsen as the Holy Ghost? Gimme a break, will ya!

If you haven't yet caught George Romero's new film, *Knightriders*, I commend it to your attention. It has its flaws, as what among us doesn't, but it is a sensitive, intelligent film filled with beautiful images, memorable characters, a fresh and original sensibility, and a determination to treat the audience with respect. Ed Harris, Tom Savini and my friend Cynthia Adler (outstanding in a cast that is, itself, outstanding as ensemble) will remain in your memory for many rich moments of recall. And, blissfully, the film is almost totally free of the violence that has come to be the hallmark of American films.

About the birthday presents you've been sending. Look: it's strictly swell of you, but knock it off, okay? I've got just about everything in the world I could want, and the money to buy the few things that arrive on the scene late. There's no room in the house for most of the things you think I'd like (that I really don't like), so they wind up going to the Salvation Army. Save your money. It's nice of you to think of me, but in future, don't bother. If you *really* want to send

me a birthday greeting, do it in the form of a small donation to the National Coalition to Ban Handguns in Washington, or to People for the American Way, or to the Klanwatch project of the Southern Poverty Law Center in Montgomery, Alabama, or to the campaign to stop the Human Life Amendments c/o National Organization for Women in Washington. You'll pay me all the compliments I could ever want, and all the respect I'll ever deserve, by committing just a tiny share of your awareness and wherewithal to these important programs.

(But if someone out there happens to have a hardcover copy of Robert Nye's novel *Falstaff* in good condition, I'd take it as a helluva birthday gift if they'd allow me to purchase it.)

It will have happened several months ago as you read this, but as I write it James Doohan of *Star Trek* has had a massive coronary. He seems to be out of danger now, having been taken off the pacer yesterday; and Leonard Nimoy was over to see him and says he looks pretty good; and when he was finally taken out of the intensive-care unit and put into a room with a phone he started calling back those of us who had been keeping vigil. First Walter Koenig called to say Jimmy was okay, and about ten minutes later Jimmy himself called. He said they may do a heart bypass, but nothing was certain at the moment. So by the time you read this "Scotty" will no doubt be well on his way to full recovery. He appreciates letters from his fans. So instead of writing a letter to me this month, telling me what a thug I am, drop a note to James Doohan, care of the office of Gene Roddenberry at Paramount Pictures in Hollywood.

END OF SHORT BITS. Except to say: apology accepted, Allison Bell.

* * *

A few random remarks about the film *Outland*; not particularly because I was asked for my opinion (though several there had been who did precisely that), but simply because I saw it and the film manages to encapsulate some thoughts I've been wanting to share with you about SF films since I began this series of columns. Thoughts that may explain why I seem to be down on the majority of big-budget special effects movies. All in the spirit of better communication between us, if you get my drift.

On sum, all things given, at base... I rather enjoyed the movie. *But only as long as I was watching it.* Like sex, even if it's bad sex, you *seem* to enjoy it while it's happening.

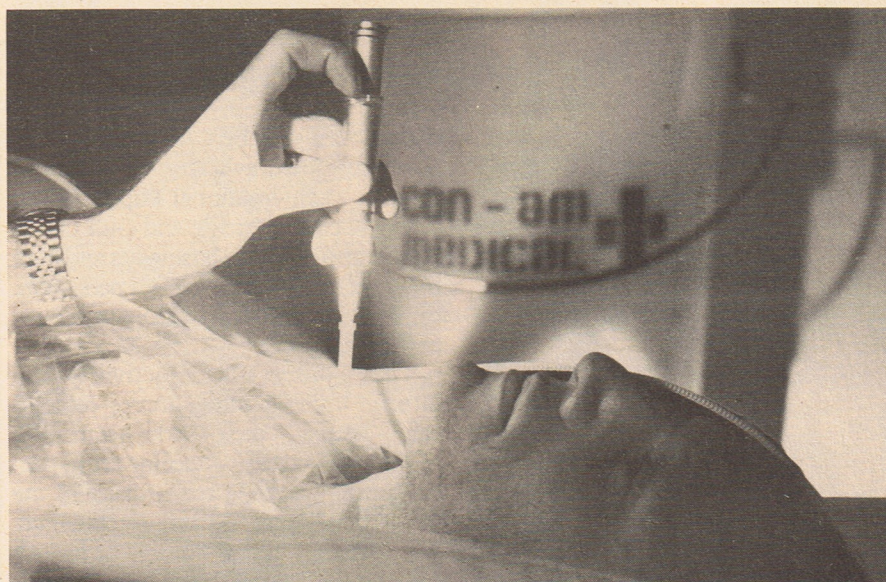
But as soon as it was over (the film, not the sex, dummy), I began realizing what a stupid piece of shit it was.

I think *that's* the intellectual crucible in which all films of this sort should be tested. How do you feel about it when you're walking away from the theater and discussing it with other intelligent people? Not the kind of fans who applauded during the scenes in which someone's body exploded, not the sort of nonjudicial adolescents (of every age) who can slaver over matte effects and miniature models and bright lights while turning off their critical faculties; but people who genuinely love and *enjoy* good movies (and if you haven't figured out that I'm one of those by this time, well we simply aren't getting through to each other). People, in short, who resent it when the script does something incredibly, gratuitously stupid that invalidates an otherwise acceptable story and makes you distrust *everything* the makers throw up on the screen thereafter.

Look: One of the basic tenets of *good* science fiction has always been that it has an intellectual content that sets it apart from and above the usual sprint of merely entertainment diversions. While we'll suspend our disbelief to allow James Bond or Burt Reynolds to jump a car in a way that we know defies gravity and the laws of impact or whiplash, we balk at permitting that kind of mickeymouse stunt in a SF film. Because we know that science fiction deals with the laws of the known universe and its accepted physics.

So when the error, the lapse in logic, is a simple one that could have been avoided without slowing or crippling the plot, that need not have set the snail on the blossom of our enjoyment, need not have darkened our feeling that we are safe in the hands of a creator who will reward us for our attention and the price of a ticket, we react more sternly than were it just another *Blues Brothers* or *The Hand*, which are brainless, loutish films but from which we expect nothing better.

Reiteration: If you cast back over the reasons why certain SF films disappointed you, chances are a good many of



Drawing blood from a corpse: Is this really possible?

them will be of this sort: silly, sophomoric, kindergarten-level scientific illiteracies that defy what even the dumbest people know about science and pragmatic reality.

I speak of the kinds of errors—and I'll offer a flagrant one in a moment—that are made by directors (and in this case a director who deludes himself that he can write) who are too arrogant to hire and listen to a knowledgeable consultant. They wouldn't have the gall, the nerve, the temerity, the *chutzpah* to make a film about the Civil War without engaging the services of a savant like Bruce Catton to authenticate detail and history; or a film about quenching an offshore oil-rig fire without getting Red Adair to validate the technique; or a film about Cortez's depredations in Mexico without constant reference to Bernal Diaz del Castillo. But they are such self-important spoilers that they blunder into the arena of science fiction with some half-baked derivative idea and they sell it to an even *less* literate studio executive and proceed to make the film without even a passing nod to the possibility that they are cramming their cinematic feet in their cinematic mouth.

The writer and director of *Outland*, one Peter Hyams, is the man responsible for an earlier exercise in stupidity, *Capricorn One*. When I consider Hyams' abilities as a plotter of SF-oriented ideas, I am put in mind of the rhetorical question, "If you nail a duck's foot down, does he walk in circles?"

Lemme give you a f'rinstance that

brooks no argument, not even from the most slavishly adoring fan of this film.

There is a scene in *Outland* where Space Marshall O'Neil, played as well as can be expected in a drone scenario like this by Sean Connery (who looks as if he wished he were back making a worthwhile flick like *The Hill*), draws blood from a corpse to ascertain if narcotics are present in the dead man's system. For the moment we'll ignore the implausibility that they have maintained the corpse in a plastic bag rather than simply cremating it in one of the mining colony's furnaces, which would be *de rigueur* in an enclosed life-system such as that portrayed on Io. Since space on shuttles would be at a premium, logic dictates that a clause would have been inserted in every laborer's contract with the mining corporation, Con-Am, that should death occur while on the job, the body could not be shipped back to Earth for burial. So they'd simply blow it out into space or burn it. But I'll even go along with the unexplained (to my satisfaction) plot-device that the body is conveniently left in transit storage for Connery to examine. (Which wouldn't happen, also, because the baddies wouldn't want an autopsy done that would show their dope had been instrumental in killing the guy. See what I mean? The more you examine the story, the more easily it falls apart.)

To get to the point. Connery sticks a needle into the tracheal cavity, ostensibly into the carotid artery, as up bubbles about a quarter of a pint of bright

red sloshy blood into the barrel of the hypodermic.

The only trouble with *that*, as any dolt who has ever watched *Quincy* on TV can tell you, is that it ignores the reality of forensic medicine and the reality of lividity. For those of you unfamiliar with the concept, lividity is what draws the blood to the lowest part of the body in a corpse. (Don't try to fudge it by saying, "Yes, well, that's how it is if there's gravity," because even on Io, innermost moon of Jupiter, gravity is on the order of one-twelfth to one-fifteenth Earth g, which would make lividity work the same way, especially after the unstated number of days the body had lain in that plastic bag. And even trying to rationalize the gravity question doesn't work, because we can see that the mining colony has *artificial* gravity. Take *that*, Saracen dog!)

So if Connery stuck that needle into the neck hollow, all he'd bring up would be *air*, because all the blood left in the corpse would have long since drained into the ass! And any first year high school biology student knows that. But not Pete Hyams, who fancies himself a writer of sci-fi movies.

And as if *that* ain't moronic enough, there is also the reality of coagulation. Days after death, you stick a needle into the body *anywhere* and nothing bubbles up like Old Faithful. What you get is a clotted brown glop.

Look: I'm getting angrier and angrier, the more I think about this. My editor is waiting for this column, he swears he'll have me defenestrated if I don't get it into the overnight post-office express shipment, and this is the second time I've mailed the sucker out. But my summation of the final 500 idiocies of *Outland* was capsulized; and I really want to lay this monstrosity out at length. So I'm retyping these last two pages and laying over the remaining section of this analysis till next time, when I'll finish *Outland* and tie it in *somehow*—Falwell willing—with my essay on knife-kill movies.

This is called a cliffhanger. It is intended to bring you back, panting for more, next issue.

And I leave you with this final warning:

You know what you should do if an Irishman throws a pin at you?

Run like hell. He has a grenade in his mouth.

The Nature Conservancy: Pin-Striped Ecologists

They are a band of unique conservationists, not of the stereotypical ilk bedecked with backpack, hiking boots and a bag of trail mix. Instead, they're more apt to appear in a pin-striped suit, a pair of wing-tips and sipping from a bottle of Perrier. And rather than hiking in the Sierras you'll probably find them climbing into the elevator of a Wall Street skyscraper. They call themselves The Nature Conservancy, and they have been responsible for saving literally thousands of pristine acres from the logger's ax, the developer's bulldozer and the oil driller's rig.

Loosely referring to itself as the real estate wing of the environmental movement, the Conservancy more formally defines itself as "an international, publicly supported, non-governmental, non-profit, scientific and educational organization committed to the preservation of natural diversity by protecting lands containing the best examples of all components of our natural world."

Through various ways and means The Nature Conservancy acquires and protects land they have determined is ecologically vulnerable to any number of impending threats, i.e. shopping malls, logging, mineral exploration. But don't get the wrong idea; they are not merely bent on locking up valuable land and its resources. They are not anti-development or anti-progress *per se*. Their land acquisitions are solidly based on scientific and economic standards rather than the simple pursuit of aesthetic recreational facilities.

The Conservancy should be a welcome breath of clean air considering the laissez-faire attitude pervading Washington these days. In fact, the organization does not depend at all on government funds in putting through its more than 200 land transactions each year. Rather, it deals with the private sector—corporations, foundations, trusts and banks. You can actually think of it as an environmentally benevolent corporation. In lieu of looking for handouts, the Conservancy is often requested by the government to purchase land the government wants but either can't afford at the time, or decides would take too long to run the red-tape gauntlet.

The roots of The Nature Conservancy



Conservancy sanctuary: Eco-business.

were planted decades ago when, in 1917, the Ecological Society of America established the Committee for the Preservation of Natural Conditions, a group of dedicated naturalists and scientists who recognized even then that our wild areas were under threat from human expansion. In 1946, this and a companion committee formed the Ecologists Union. Four years later, the Union officially became The Nature Conservancy, boasting a membership roll of 342. It was not until 1951, though, that the organization made its first land acquisition at Mianus River Gorge in Westchester County, New York. Today, the Conservancy claims at least 85,000 members, operates with a budget of nearly \$64 million and has consummated more than 2,400 land deals, thereby preserving nearly 1.7 million acres of woodland, marsh, prairie swamp and other natural areas.

Principally a membership organization (with annual dues of \$10), the Conservancy also consists of a Board of Governors, a paid professional staff that ranges in background from lawyers to biologists to real estate agents, and a volunteer staff. Headquarters are in Arlington, Virginia, with regional offices and chapters in just about every state—all participating in the management of properties in the U.S., Canada, Latin America and the Caribbean. Interestingly for an environmental group, the

three dozen members of the Board of Governors are drawn from such natural enemies as International Paper, Union Camp, Georgia Pacific and Gulf Oil. It is these and other big businesses and high finance types who have been persuaded by the Conservancy to donate money and land.

The Conservancy's activities are threefold: the identification of ecologically significant regions; the acquisition of those areas they determine are in peril; and the on-going stewardship of the lands to maintain their natural balance. Key to the group's actions is the hi-tech inventory of natural habitats, accomplished through the use of computers and state-of-the-art compilation data. It's all part of the Natural Heritage Inventory Program—now operating in 24 states—a sophisticated network that continuously gathers, records and updates scientific data on significant features of an area's natural environment: rare and endangered species, plant communities, aquatic life, etc. This information is then turned over to the individual states, which in turn can prevent trouble *before* it has a chance to make lasting effects. The Conservancy is currently implementing a similar program to operate on a national basis.

Once the jeopardized areas have been defined, it must then be determined which are in dire need of protection—which ones the Conservancy might want to buy. The targeted area is appraised by the staff and then by the Board of Governors. Upon final approval, funds are allocated from either the Conservancy's Project Revolving Fund or the Land Preservation Fund. Much of this money comes from private individuals, corporations and groups like the Ford Foundation and the National Science Foundation. The Conservancy has solid lines of credits with banks, and its 302 corporate members pay annual dues of \$1,000 apiece. This only further illustrates how a private concern can do the work that a fiscally imperiled government will likely ignore.

In some instances land is procured through gifts made to the Conservancy. Let's say a wealthy benefactor—a private citizen or a corporation—deter-

(continued on page 49)



STARLOG PRESENTS THE BROTHERS HILDEBRANDT'S

ATLANTIS

1982 Calendar

13 Original Paintings



ATLANTIS: The Lost Continent. It has been the object of romantic fantasies for centuries. Now the renowned art team, *The Brothers Hildebrandt*, have created what could well be the most fantastic interpretation of this mythical land: *The Brothers Hildebrandt ATLANTIS 1982 Calendar*.

With thirteen original full-color paintings plus small black-and-white sketches, ATLANTIS comes alive with dinosaurs, beautiful heroines and sleek spaceships—a mystical blending of technology and simplicity in the artistic style that belongs only to the Hildebrandt's.

From their famous *Star Wars* poster, to the illustrations for the *Sword of Shanarra*, to their own illustrated novel, *Urshurak*—the *Brothers Hildebrandt* have become the most influential force on the science fiction and fantasy art scene. But it was their three J.R.R. Tolkien calendars that brought the Brothers their international following.

Starlog Press, the leading publisher of science fiction and fantasy, is proud to premiere the *Brothers Hildebrandt's* newest calendar, destined to become as legendary as Atlantis itself. This is more than simply a collector's item; it is an art treasure and a journey into fantasies limited in scope only by human imagination. Join Starlog Press and the *Brothers Hildebrandt* on this epic search.

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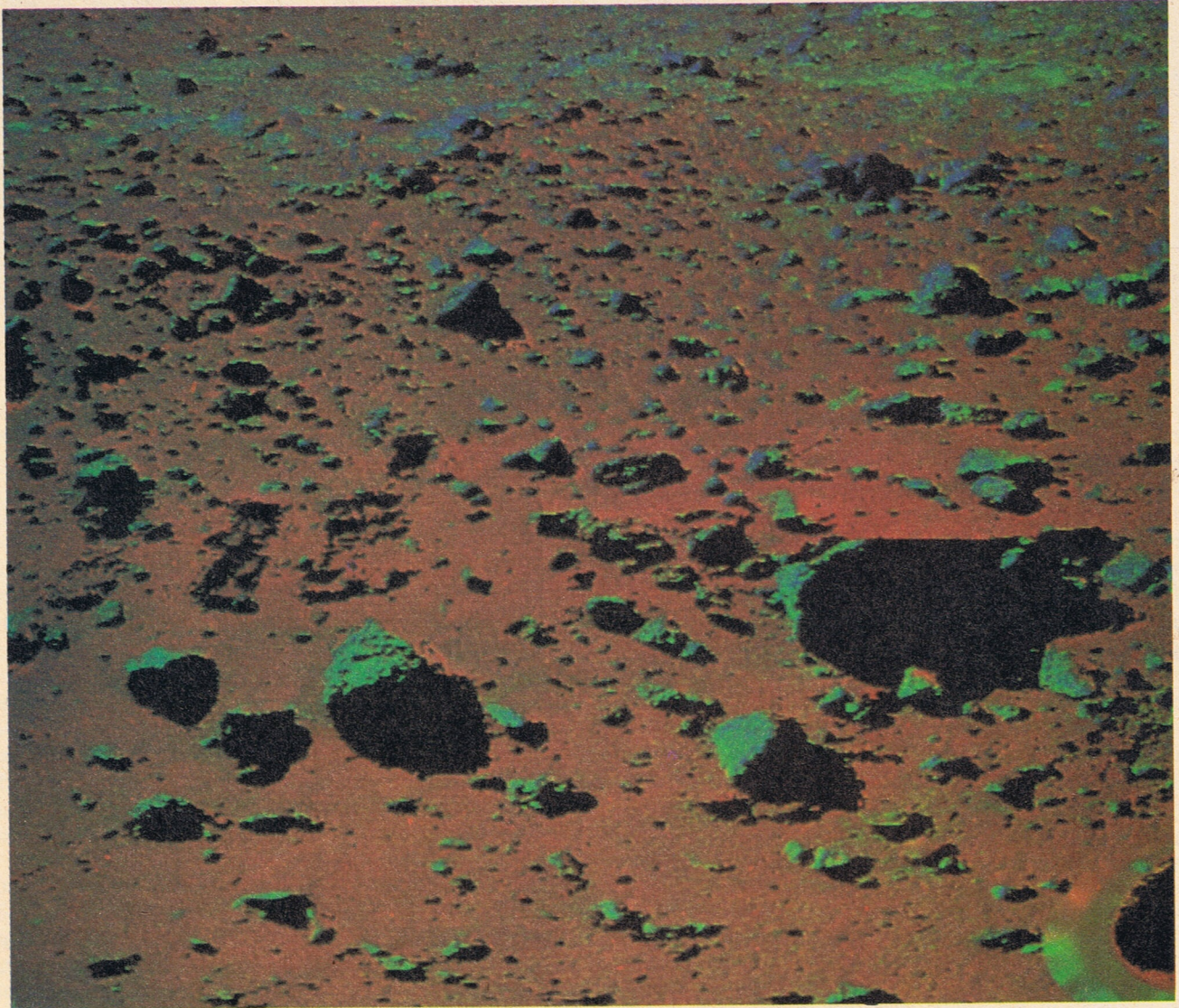
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Mars Through Colored Glasses

Using a special computer enhancement process, scientists are repainting the surface of Mars in rainbow-colored hues.

By BARBARA KRASNOFF



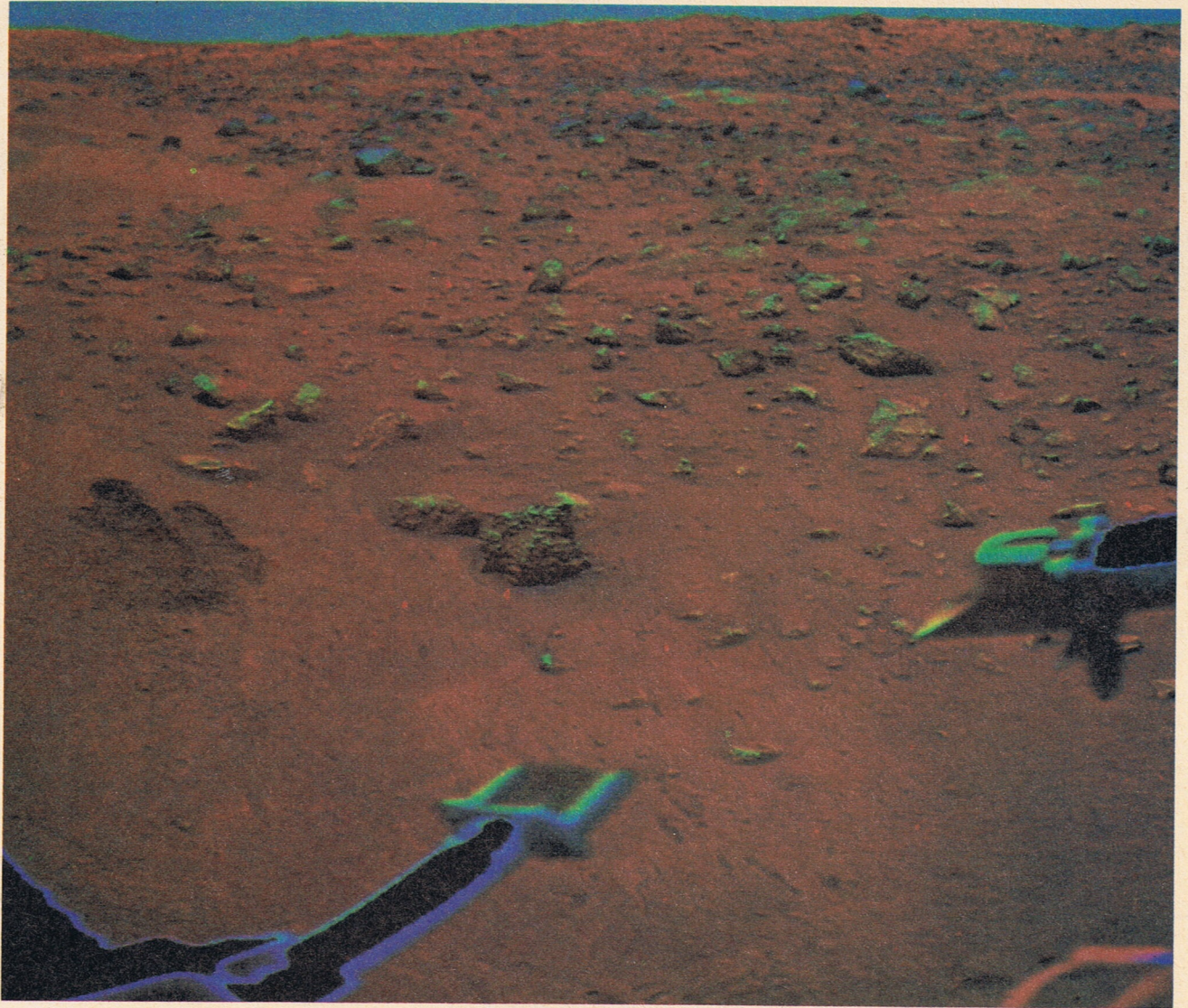
PHOTOS WASHINGTON UNIVERSITY SPACE IMAGERY CENTER

This photo contains the color information which was present at that scene without any brightness information—giving the photo an eerie sense of unreality that is missing from the more controlled version. It was taken at about 10:15 a.m. on a wintry Martian morning, and includes the same area as the photo at the top of page 48—after that terrain had been subjected to two dust storms. In addition, since parts of this particular photo were over-exposed, the computer “filled-in” with colors from surrounding parts of the scene—creating its own work of art.

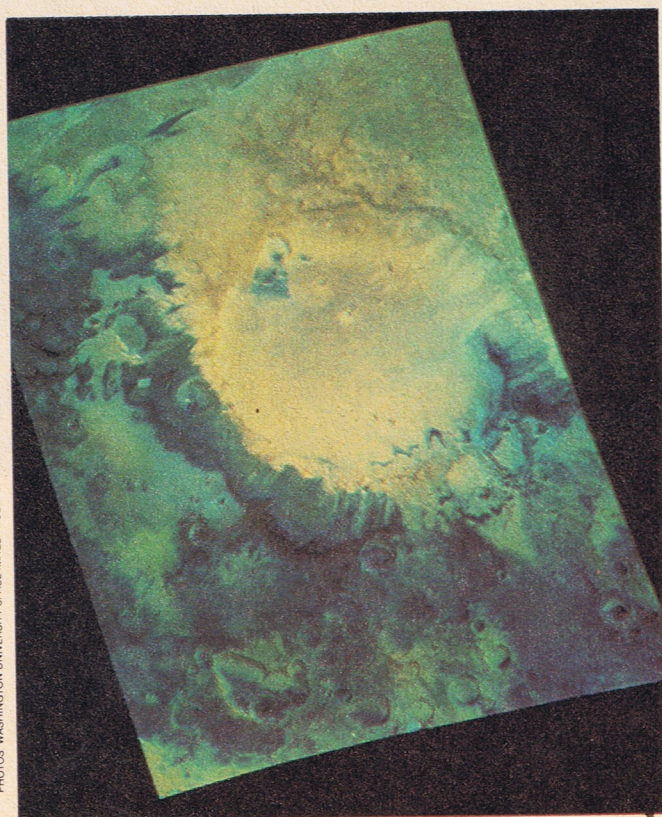
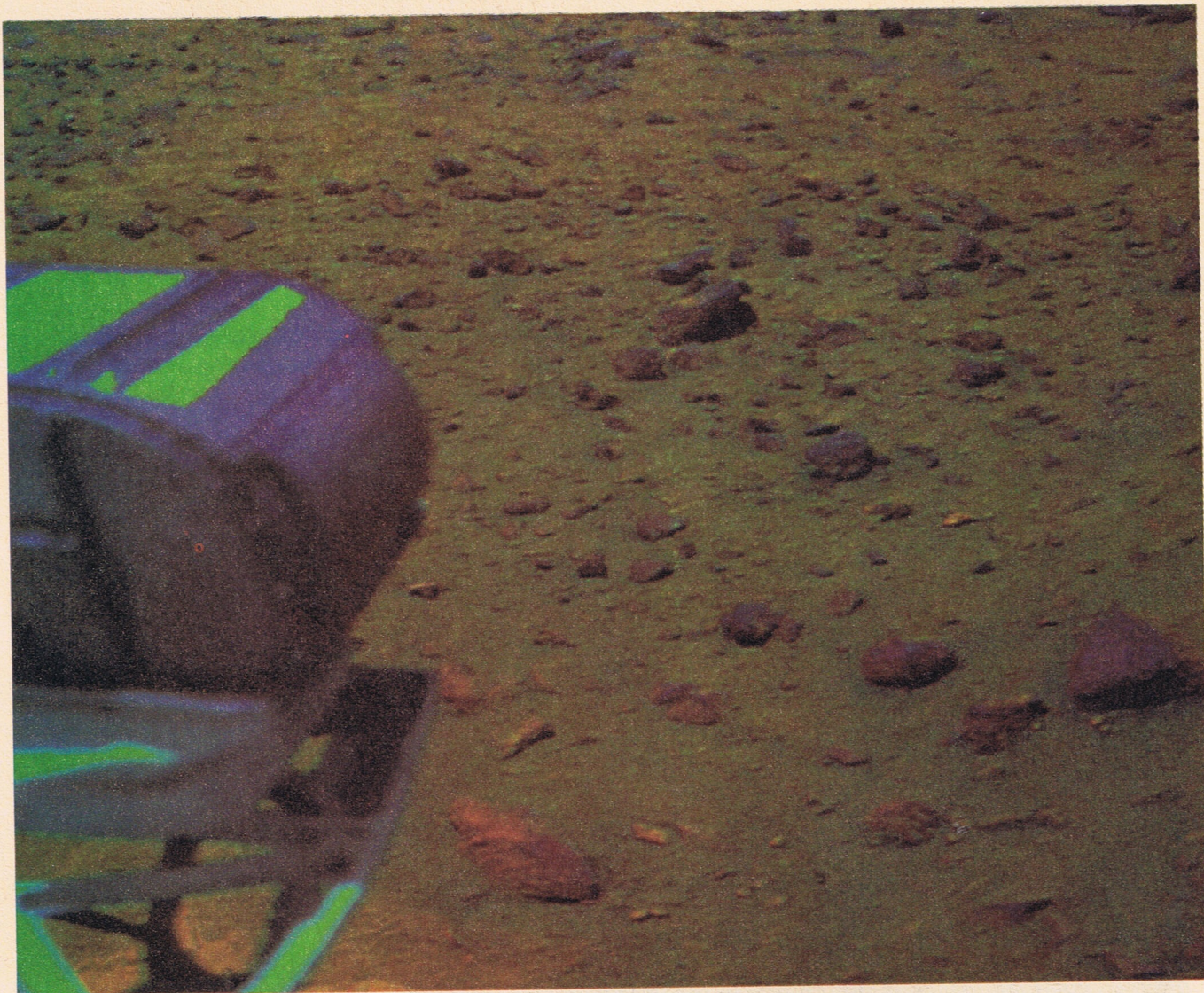
While most of our readers are probably willing and eager to set foot on the surface of Mars, it is likely that the artistic instincts of the would-be traveler would be slightly disappointed. Although the colors of the Martian surface are quite visible (in tones of yellowish-brown), they are not terribly spectacular. This monotonous tendency also makes it difficult for scientists to discern subtle changes in the terrain. So, in the interests of scientific exploration, computer experts such as Edwin L. Strickland III of the Space Imagery Center at Washington University in St. Louis are using computers to enhance the normally bland

colors of Mars. And if, while doing so, they also create the type of brilliant landscapes that appear on these pages—well, why not enjoy them?

In order to create these color-enhanced photographs, data from the Viking landers were put through an Optronics film recorder to generate black and white transparencies, and then processed in a photolab to produce color transparencies. Information about the color and brightness of the scenes was processed separately during the enhancement sequence, and these factors were adjusted by the scientists according to the effects they wished to create.




This image is looking to the east and southeast of Viking I. The sampler arm of the craft appears at the righthand edge of the picture, while the instrument at the bottom is a support for the weather instruments. Note the two trenches at left—they were dug by the Viking as part of its programming.



PHOTOS WASHINGTON UNIVERSITY SPACE IMAGERY CENTER

Above is a special version of a photo taken by Viking Lander I, produced in an attempt to see if unnatural color combinations could bring attention to features in the scene not obvious in the regular color-enhanced versions. In this case, blue and red data are printed correctly, but purple and green are reversed. As a result, normal green rocks appear purple, and dark blue boulders appear blue-green.

The photo below covers the large crater Schiaparelli, which is located near the equator just east of the prime meridian. It was taken by Viking Orbiter I at mid-morning while the spacecraft was on its 669th orbit of Mars. Each dot in this image is one square kilometer, and the frame covers an area a little over 1,000 kilometers across. 

Earth Control

(continued from page 44)

mines that a gift of a natural area is desirable and economically feasible (usually as a tax write-off). The land is evaluated through the proper channels, and, if approved, the transfer is completed. Maintenance of these areas is financed through the General Fund.

Another acquisition technique that does not require outright ownership by the Conservancy is known as a conservation easement. This permits the donor to retain title to the land—allowing the continuation of activities such as hunting, logging or mining—but permanently denies them all development rights. The Conservancy considers such deals less than optimal but better than nothing.

Approximately 60 percent of all their natural areas are retained by the Conservancy and are administered by a volunteer corps of 4,000 land stewards who work with the Conservancy to determine exactly what needs to be done to preserve the land. Best of all, most of the areas are open to the public for education and passive recreation: hiking, birdwatching, nature study and photography.

In cases where the Conservancy holds land for the government, the government usually assumes ownership after they have raised the money or have hurdled legislative obstacles. However, this repayment process is currently threatened by the Interior Department, which has ordered a halt to all new land acquisitions. Furthermore, the government funds used to buy back land from the Conservancy are also under attack. This may leave the Conservancy a bit in a financial lurch for the next several years.

Besides this inconvenience, The Nature Conservancy doesn't expect its activities will be curtailed by rumblings from Interior Secretary James Watt's regime. Unlike many other environmental groups—Audubon, Sierra Club, Friends of the Earth—who are drawing the battlelines to challenge Interior's expected assaults on everything from the Clean Air Act to the National Parks System, the Conservancy has avoided the litigation and lobbying areas. According to the group's legal counsel, Michael Dennis, "It would create a major obstacle if we decided to put our resources into the legislation and lobbying areas. But if [some action] directly affects our property, then by god we'll certainly go out there and fight with the best of them."

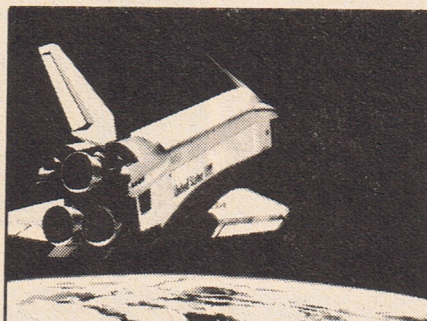
Alternate Space

(continued from page 33)

(and more) to any nation that can ante up the launch fee. To insure this they are seeking launch sites in several more nations. (Kaddafi wouldn't let OTRAG launch an Israeli payload from the Seba Oasis any more than the U.S. would orbit an Iranian payload or the Soviets one from China. But with launch sites in enough countries it should be possible to orbit anybody's payload.)

Worse yet, OTRAG promises to drastically undercut the launch costs of the U.S. space shuttle, the French Ariane and the Soviet Soyuz and Progress. Can you imagine the embarrassment the major powers will suffer when Comsat and Satellite Business Systems and Monaco and the kid down the block are all sending their payloads to the Seba Oasis?

When OTRAG launches its first orbital flight, probably later this year, we'll hear another burst of scare stories in the media. Over in Libya it may get even stickier than it was for Mobutu. Does Kaddafi have what it takes to defend OTRAG from the intrigues of the super powers?



NASA photo

Our Space Future— How Certain Is It?

America is proceeding in certain areas of space exploration. But we aren't taking full advantage of the energy and material resources of outer space. Even though we know they're enormous.

FACT: The space shuttle—already underfunded and over 2 years behind schedule—will never be fully utilized in such a "bare-bones" budgetary climate. This situation will only further delay the breakout into space by America and the world.

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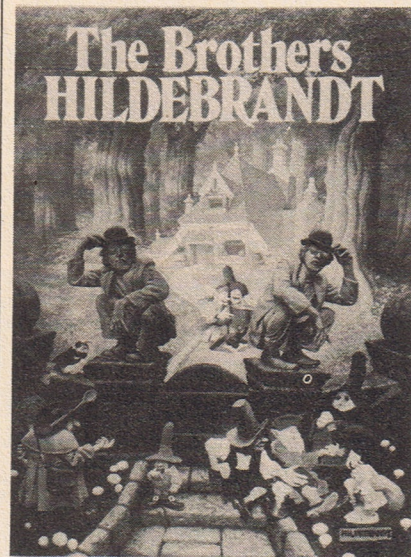
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SOUNDTRACK SPECTACULAR



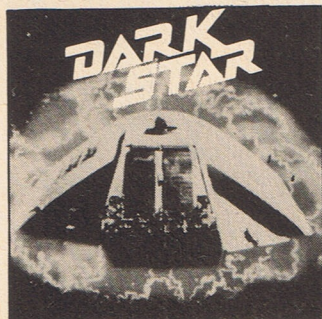
Original list: \$8.98 Special: \$7.98

FORBIDDEN PLANET (The Original Soundtrack in Stereo)

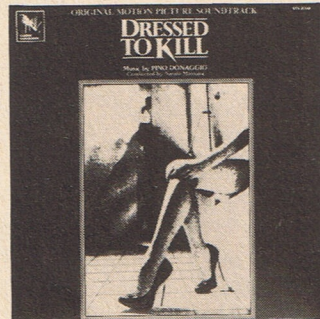
For years, the revolutionary electronic score for this classic SF movie has been sought by fans and collectors. A few years ago, composers Louis and Bebe Barron produced the soundtrack album themselves, but it saw very limited distribution. Now, STARLOG has made arrangements for a limited quantity (sealed and mint) at an incredible discount price. We suggest you order!

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DARK STAR
First Release:
Cult SF film soundtrack, music and dialogue.



DRESSED TO KILL
Sensational DePalma thriller.
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JOHN PAUL JONES
Composer Max Steiner conducts
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THE HOWLING
Pino Donaggio's latest horror score is
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KNIGHTS OF THE ROUND TABLE
Miklos Rozsa stereo rouser to
CinemaScope epic.



SAMSON AND DELILAH
Romantic C.B. DeMille drama,
music by Victor Young.



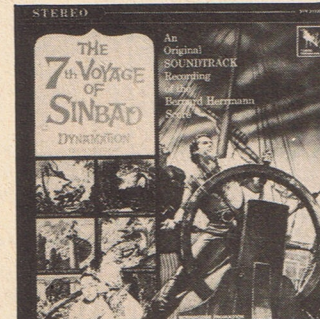
TOUCH OF EVIL
Joseph Gershenson conducts
thriller music by Henry Mancini.



CAPTAIN HORATIO HORNBLOWER
Robert Farnon conducts his score
for adventure/sea epic.



MAD MAX
Dynamic, percussive music to
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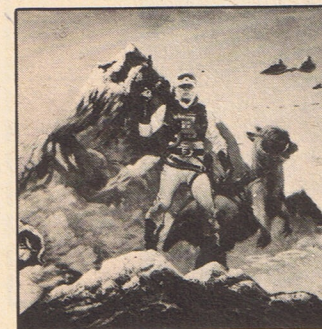
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Herrmann conducts original soundtrack.
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ROCKETSHIP: XM SR-1000
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This is a digital sampler and demonstration record with a sensational sense of depth and space—highest quality imported pressings.



SOUNDTRACK SPECTACULAR

First Men in the Moon And Other Original Motion Picture Scores

The London Studio Symphony Orchestra Composed
& Conducted by LAURIE JOHNSON

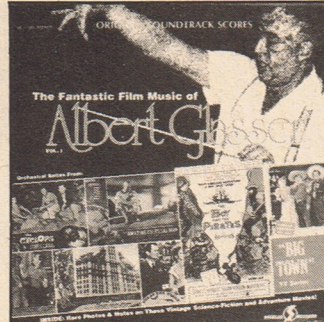
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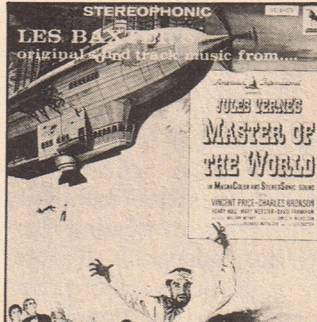
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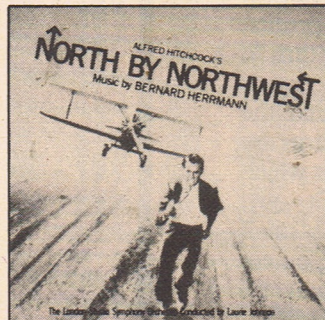
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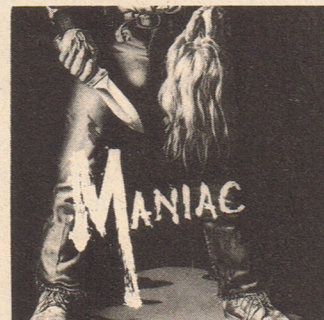
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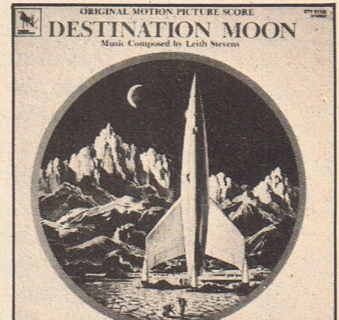
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INVESTING IN THE FUTURE

By BOB WOODS

Science fiction has invaded Wall Street. No, the residents of this bastion of the economic world have not taken to wearing *Star Trek* T-shirts, but underneath all those pinstripes are boardrooms-full of closet futurists. During the last couple of years, the stock market has trained its financial eye on the burgeoning field of high-technology industries—tagged hi-tech in most circles—and the result is a bold, new proliferation of products, investment of oft-times conservative dollars into research and development and some hefty profits from the many companies.

Real life and science fiction continue to cross paths as literate dreams become engineers' designs. Space shuttles can really fly, lasers can really cut through steel and computers can really think and talk. Aside from being an interesting integration to follow, this influx of hi-tech in our lives is evolving into a major component of the business and manufacturing worlds. In turn, investment dollars are being channeled into Buck Rogers-type companies marketing items that ten years ago most Wall Streeters would have laughed away as nonsense—or science fiction.

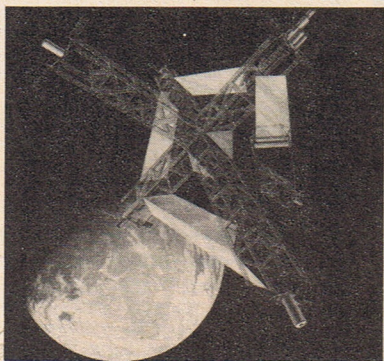
Which points to an intriguing facet of this whole hi-tech trend: For the first time, companies whose products are still in the R&D (research and development) stage are emerging as public offerings on the stock market. R&D is usually financed by the government, as demonstrated by the heavy government invest-

ment in the 1960s space program and the "fallout" of products that quickly found a niche in the consumer market. For instance, computer technology would have advanced at a much slower pace if not for the efforts of the Gemini and Apollo programs. But with the proven capability of hi-tech designs and products and the promises of turning today's research into tomorrow's profits, companies that might otherwise turn to Uncle Sam are now eyeing Dow Jones. And vice-versa. Anticipating that the risk factor is not too great, investors are willing to finance R&D in firms which may not even be turning a profit—yet. This is additional incentive for small businesses who have no other resources to fund their activities. Small investors—such as FUTURE LIFE readers—also benefit from such a trend, since stock prices are still relatively low.

It's difficult to narrow down exactly which are the hi-tech industries. Their reach is far and wide, from home computers to communications satellites to disease-curing pharmaceuticals. You must also recognize not just the whole of these firms, but all their parts as well. For example, in the computer industry, the software manufacturers, not the makers of the computer hardware itself, are often the ones to watch. This is key to high-tech investing: look for the makers of the parts and components that comprise hi-tech products. Many such small firms are making strong initial showings on the stock market.

Technology-based industries are cer-

Wall Street has seen tomorrow and it looks bullish.



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100.00	100.00	100.00	100.00	100.00	100.00

Nasdaq Supplementary O-T-C

Big Assed		Big Assed		Big Assed	
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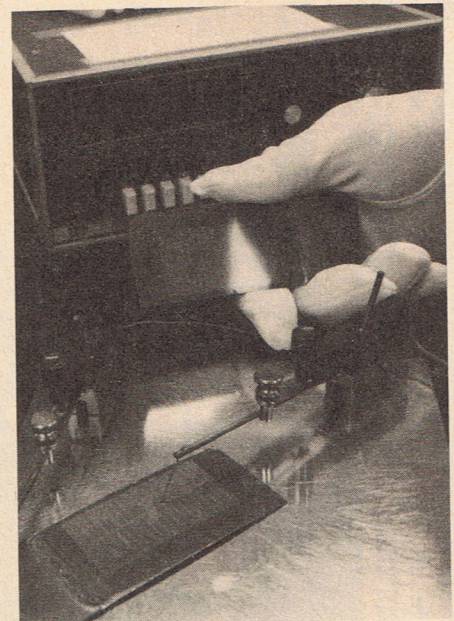
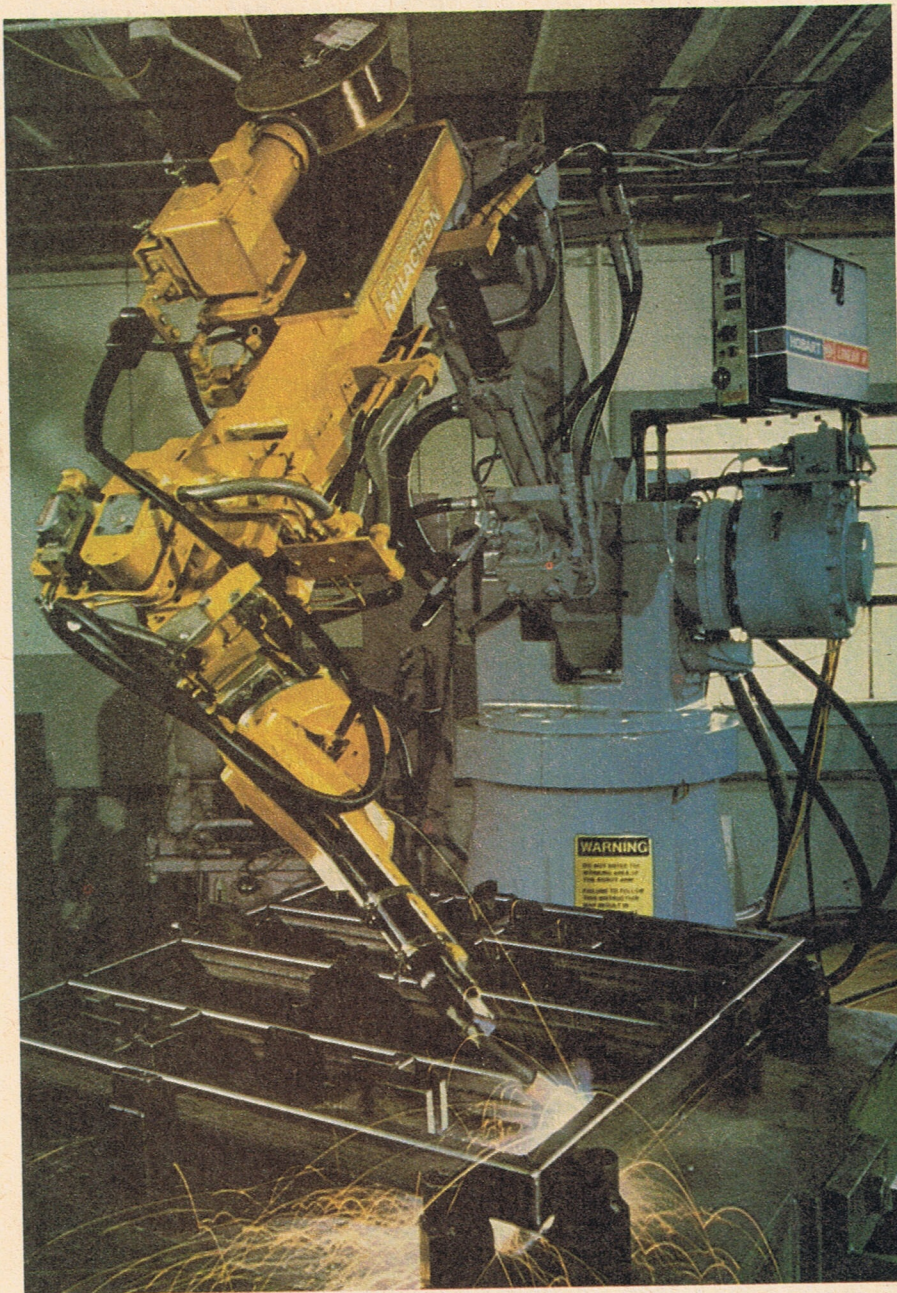


PHOTO: AMETEK INC.

There are many hi-tech industries worth investing in today—even though some are still in the R&D stage. These include: industrial robots (*left*), like those made by Cincinnati Milicron; photovoltaics (*above*), represented by innovative firms like Ametek and its patented solar-collector cells; and bioengineering labs such as the one at the University of Texas in Houston, pictured below.

tainly not new. Data processing, aerospace, chemical and xerography companies have been major stock issues since the 1950s. But as new technology and its many by-products appears on the market more quickly and at cheaper prices, the interest and faith that the trend will continue heightens. Which is, after all, what investing is all about.

The best way to discuss the current state of the phenomenon is to break it down into the various industries that are usually grouped under the hi-tech heading. Some certainly will be omitted in this basic survey, but it should give you a pretty good idea of what is happening, who's making it happen and how you might get yourself—and your hard-earned money—involved. For more detailed information and counsel, we suggest you contact a licensed stock broker

or other investment expert.

One of the more sci-fi type industries to gain prominence in both the news and financial worlds is genetic engineering: gene splicing, recombinant DNA, bioengineering and other means of biological and chemical synthesis. A good example is Genentech, the San Francisco-based firm that "went public" (as it's said in the trade when a company decides to offer itself to the public in the form of stock certificates) six months ago with such a bang. Who would have thought that a company that makes life forms would cause such a stir on Wall Street? But it happened, and lots of investors were attracted. Despite its bullish entry, though, Genentech's stock went from its initial price of \$35 per share to a high of \$87 and then sank to \$40, where it remains (approximately) today.



PHOTO: SHELL OIL/UNIVERSITY OF TEXAS

Genetic research is one of the most promising paths in the medical and pharmaceutical fields. Knowledge gained from fiddling with the stuff life's made of provides the potential for discovering a drug that cures cancer or a microbe that feeds on pollutants. Business is not blind to the marketing and manufacturing perspectives of this. Nor were they blind when the Supreme Court decided that General Electric could actually patent a life form (a microscopic

bacteria that literally eats oil), which opened numerous commercial possibilities. Since then, bioengineering manufacturers have emerged and related industries have diversified their product lines to include such items. A case in point is Cetus Corp., the oldest and largest genetic engineering company in the U.S., which recently made its first stock offerings in a big way by raising \$115 million. This stands as the largest initial public offering in American corporate history. Instead of confining its products to the medical field, though, Cetus plans to market goods across the broad range of chemicals, foods and fuels. "We're all over the ball park," admits Cetus president Dr. Peter J. Farley. "The philosophy here is to take biology wherever it will lead us, and the priority will be to focus on those markets that will grow to over \$1 billion in sales."

Other interesting companies to watch in bioengineering are Cytos, Beckman Industries, Enzo Biochem Inc. and Hoffman-La Roche, which formed a recombinant-DNA division. Because of the growing competition and the still-relative infancy of this type of business, you might look for the emergence of private research labs into the public market. Harvard University almost made such a move last year in an effort to finance their prolific bioengineering studies. They pulled out at the last minute, most likely due to the academic criticism concerning conflicts of interest. As the costs of R&D continue to rise, though, such ethical demerurs might look the other way.

The broad category of hi-tech home entertainment is fast becoming a prime investment ingredient. This includes home video recorders and players, cassette and the new disk machines, cable television and home computers. Remember, this field encapsulates not only the hardware—the players, TV sets, terminals—but the software too. In home entertainment, software incorporates not only the actual video cassettes, disks and games, but also independently produced programming for cable networks, and even the communications satellites that beam the cable signals Earthward. So these manufacturers and distributors have to be monitored too.

Contenders for leader of the video pack are still at the starting gate, especially with the recent introduction of the disk. The cassette market is pretty much dominated now by Sony and RCA, with more than a million sets in American homes using either Sony's exclusive Betamax system or the incompatible VHS system employed by RCA, Magnavox



PHOTO: APPLE COMPUTER INC.

The home, or personal, computer business is one of the hottest on today's stock market. Apple, with its Apple II System, is representative of the many small companies that are making a big splash on Wall Street lately.

and other companies. The disk game, on the other hand, is just beginning. RCA introduced its SelectaVision, in conjunction with Zenith and CBS, this spring. Then there's MCA-IBM and their Disco-Vision players, followed by Phillips (through its Magnavox subsidiary), Pioneer, General Electric and JVC—all scrambling for a piece of the action. As in the cassette market, there are two types of disk systems, and neither has claimed exclusivity as of yet. The cheaper RCA system uses a needle-type reader (similar to a turntable's stylus), while the competition is going with an optical laser reader that costs more but has added features like slow motion and freeze-frame. At this point, as consumers wait for the prices to come down and the introduction of more and varied software, the market analysts are reserving judgment before naming the winner.

The cable stable is similarly unsettled now, even with estimates that half the homes in the U.S. will be plugged into some type of cable system by the end of this year. The capabilities are still in a threshold stage, with more satellites soon to be launched, and a shift from copper transmitter wire to super-thin fiber optics. Soon, cable marketers will be screaming for programming, shifting much of the attention onto independent production companies. By the end of this decade, it will be possible to receive almost any sort of information and service in your home via cable. The three big TV networks are thus far forbidden from entering the cable arena, but other corporations are coming on the scene. The leaders today are Westinghouse-

Teleprompter, Time Inc. (with its American Television Communications and Home Box Office networks), Telecommunications, Cox Broadcasting and Warner-Amex. Keep an eye out, though, for large concerns—like oil and movie companies—to enter the market. There should also be healthy activity in the business of cable, cassette and disk programming, in addition to the recordings of movies, television shows and sports events. MCA is making strong initial showings in the programming area, along with Warner Communications, whose Qube talk-back format could give them an advantage.

The home or personal computer market is equally attractive, and is another technology in the early stages of development. The software, including data bases and information services, is the exciting factor here as the basic hardware—CRT, printers, disk drivers, etc.—becomes more affordable. The terminal will soon become more than an entertainment center; it will provide news, shopping guides, educational programs and the opportunity for a new cottage industry to allow employees to work at home and simply relay their assignments to the office. The surface, it seems, has only been scratched.

Esther Dyson, computer software analyst with the New York brokerage firm Oppenheimer Co., confirms this prediction. "What makes the home computer exciting," she says, "is when it's connected to other computers and data bases. Then you can find out what the specials are at the grocery store, what's playing at the movies, what the

local travel agent is offering. . . . You have access to other people's information, not only the management of your own."

The microcomputer vanguards are: Apple, the phenomenon born in a California garage and introduced to the market last year; Tandy, with the popular TRS-80 and its powerful nationwide network of Radio Shack outlets; and Commodore International. Still to come are offerings from biggies like IBM, Hewlett-Packard and Texas Instruments, though it's not yet certain how strong a part such huge organizations will play. However, their already-established marketing wings could muscle out smaller competitors.

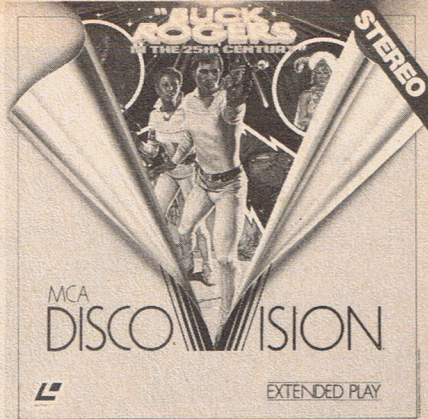
The home computer software market is still up for grabs. The Source, part of the privately owned Reader's Digest empire, has the biggest share so far. They're followed by Compuserve, a division of H&R Block. There are sure to be dozens of small companies cropping up soon, but when and whether they'll be public offerings is not determinable. This is definitely something worth keeping abreast of.

By no means does the computer market stop in the home. There are two major technological innovations on the horizon that will have dramatic effects on the industry. The first entails a revolutionary type of hardware, referred to as semi-custom logic or gate arrays, and the other is a computer area known as CAD/CAM (computer-aided design and manufacture).

This basis for gate arrays involves the manner in which a computer thinks and how this is translated into its particular functions. The gate arrays will allow speedier, more compact and custom-designed programs. This means that data processed by computers will find its way into application much sooner.

CAD/CAM equipment has been available to engineers for about 15 years, but had its initial use in the auto industry only in the past 10 years or so. At an average price of \$400,000, a CAD/CAM system permits a trained designer to "sketch" his ideas on a CRT, edit them by using programmed information and finally produce a complete schematic. Some systems take this one step further by producing machine-control tapes that can be plugged into manufacturing machinery.

Thomas Kurlak, a member of Merrill Lynch's hi-tech team in New York, specializes in watching this growing market, whose impact will be felt in just about every industry that designs. . . anything. Kurlak points to the astounding 50 per-



The video disk market is still up for grabs. MCA, with its DiscoVision system, is one of the early contenders.

cent growth rate in the CAD/CAM market last year as ample evidence, and forecasts it will remain close to this kind of expansion for the next several years. Indeed, in a survey of international industry experts, it was estimated that one fourth of all machined parts will be designed by CAD/CAM by 1985, and fully one half by 1990.

From an investment standpoint, Kurlak claims Computervision as the undisputed leader, particularly with the recent introduction of its Designer M model selling for \$180,000. According to Kurlak, Computervision will remain on top, while other highly competitive firms to monitor are Matrix and Calma, a recent acquisition of GE. He is less enthusiastic about Auto-trol Technology, Applicon and Gerber.

As manufacturing becomes more and more automated, computers will be programmed for everything from design to actual tooling. In turn, the use of robots will become a common occurrence. Their greatest benefit will be in replacing the growing shortage of skilled workers in highly repetitive and hazardous tasks. It is still too soon to say how great the market will become over the next couple of years, but so far U.S. sales are dominated by Cincinnati Milicron and Condec.

Another embryonic hi-tech field is photovoltaics, the use of solar collectors to produce electricity. A patent granted to Ametek Inc., says company spokesman Darrah Ribble Jr., will allow them to offer a cost-efficient solar collector by the end of the year. Other leaders in photovoltaics that deserve investment considerations are Tyco Laboratories, Optical Coating Laboratory, Energy Conversion Devices and UTL Corp. As the price of oil continues to climb and alternative sources play a more prominent role in the construction industry, the solar energy business has nowhere to go but skyward.

Although they're not usually thought

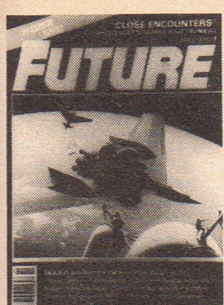
of as a hi-tech industry, the semiconductor manufacturers are actually the basis for so many electronic applications that they can not be ignored on Wall Street. Michael Krasko, semiconductor expert at Merrill Lynch, warns investors of the cyclic nature of the industry, dependent on such flexible economic factors as the prime lending rate, inflation and new product offerings by manufacturers who buy semiconductors. Industry analysts like National Semiconductors at this time, and are also interested in Kollmorgen, AVX Corp. and Intel.

Another industry that has Wall Streeters buzzing is the wide grouping of defense electronics. It's no secret that the Reagan Administration is considerably increasing the nation's military spending to build more tanks, bombers, missiles and other elements that require electronic components. Merrill Lynch analyst James Samuels claims strong showings lately by Watkins-Johnson and E-Systems, as well as Sanders and Tracor.

There are literally hundreds of companies involved in the technological revolution. As hi-tech stocks pick up, many of the large brokerage firms are forming specialty groups like the one at Merrill Lynch. Meanwhile, smaller brokers are working almost exclusively with hi-tech investing. A good example is Rooney, Pace Inc., New York, whose issues have grown significantly along with the number of new companies entering the stock market.

The entry of so many small companies, says Oppenheimer's Esther Dyson, can mean exciting times for small investors. "More and more small companies are coming into the hi-tech field," she says, "many of which are not even turning a profit yet." There is bound to be a great deal of investment in these companies, much of it based purely on the hope of future profits. People have believed and later been burned many times before in the crazy world of high finance, and hi-tech investing is no different. But Dyson and other experts insist that now is a time to believe.

Would FUTURE LIFE readers be attracted to the current activity on the hi-tech market? "I certainly hope they would," Dyson states without hesitation, but then adds with a grin, "as long as they're willing to lose some of their money. If you diversify you can generally end up pretty safe. Some of these companies are going to go bust and others are going to do very, very well. Many will be acquired by more established firms. They're on the leading edge of what's happening."



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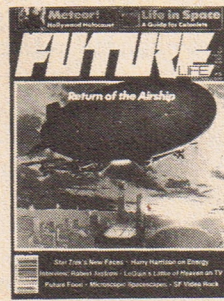
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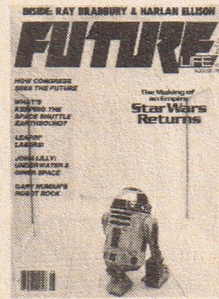
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Keith Page

By BARBARA KRASNOFF

While most of our Portfolio artists necessarily hail from the United States (unfortunately, FUTURE LIFE's budget does not extend to the making of intercontinental trips!), it would be very wrong to assume that all science fiction art talent is confined to the shores of North America.

Keith Page, the gifted English artist whose work is featured here, is a case in point. A resident of the county of Kent, he approaches his subject in an innovative, occasionally tongue-in-cheek, and very British manner.

As with most SF artists, Keith's interest in spacecraft, both probable and improbable, dates from his early years. "As a child, I was always keen on aircraft, railway locomotives, cars and spaceflight," he recalls, and grins. "Not always in that order!" He was also a fan of the '50s television SF dramas that were so popular in England, including *Quatermass and the Pit*, the early *Dr. Who* series and an American import entitled *Men Into Space*.

"As I remember, my other main enthusiasm was comics," Keith says, "both imported United States D.C. publications and also our own Eagle comics featuring the wonderfully detailed 'Dan Dare' strip by Frank Hampson. Like many other children, I used to draw cars and aircraft, and draw my own versions of comic characters. I recall that 'Dan Dare' spaceships used to figure prominently in the margins of my schoolbooks!"

However, unlike other children, Keith's enthusiasm for comic art lasted well into adulthood. "I still have a great fascination for comic strips," he says. "This is probably because it's the

nearest you can get to having complete control of a film production if you think about it. You're only limited by your own imagination, and the thing can be created with the simplest of tools—pen and paper."

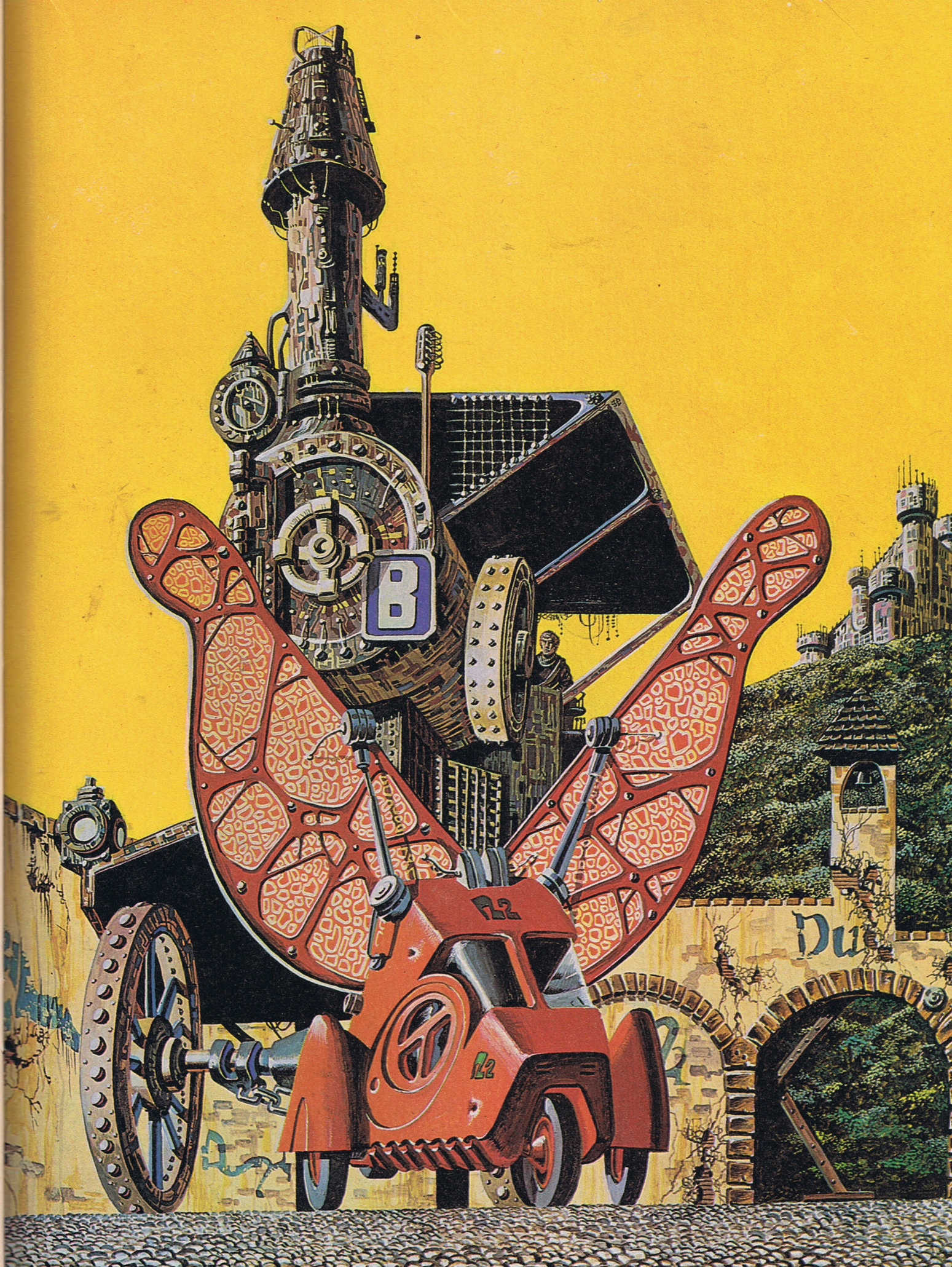
Keith's interest in the field led him to try his hand in the business as a professional artist, and—after what he describes as "several years of drawing, drawing and more drawing"—he began to sell his work. In fact, during the recent boom in science fiction, Keith's art has become more and more in demand. He has worked on such comic strips as "Judge Dredd," about a 22nd century U.S. speed cop; "Mind Wars," about intergalactic ESP wars; and "Strontium Dog," about a mutant bounty hunter.

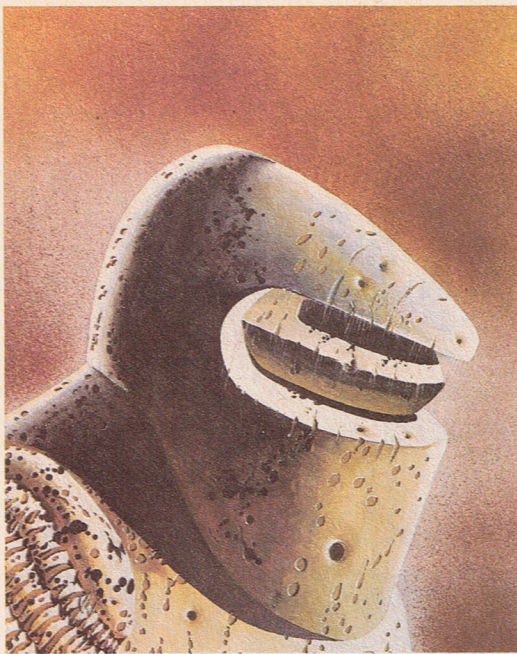
"I find strip work very enjoyable," says Keith, "although it has limitations in that you can't always produce quite as good a job as you would wish due to very restrictive deadlines. One-off color illustrations tend to be (usually) more flexible and permit a much finer finish, of course."

However, Page does not restrict himself to science fiction art. His interests range from futuristic spacecraft to ancient English history. Besides being a member of the British Interplanetary Society, he is also fascinated with such historical tidbits as Victorian military history, the Zulu wars, prehistoric standing stones and Victorian engineering. This rather anachronistic range of subjects is one of the factors that makes much of his artwork so fascinating to look at.

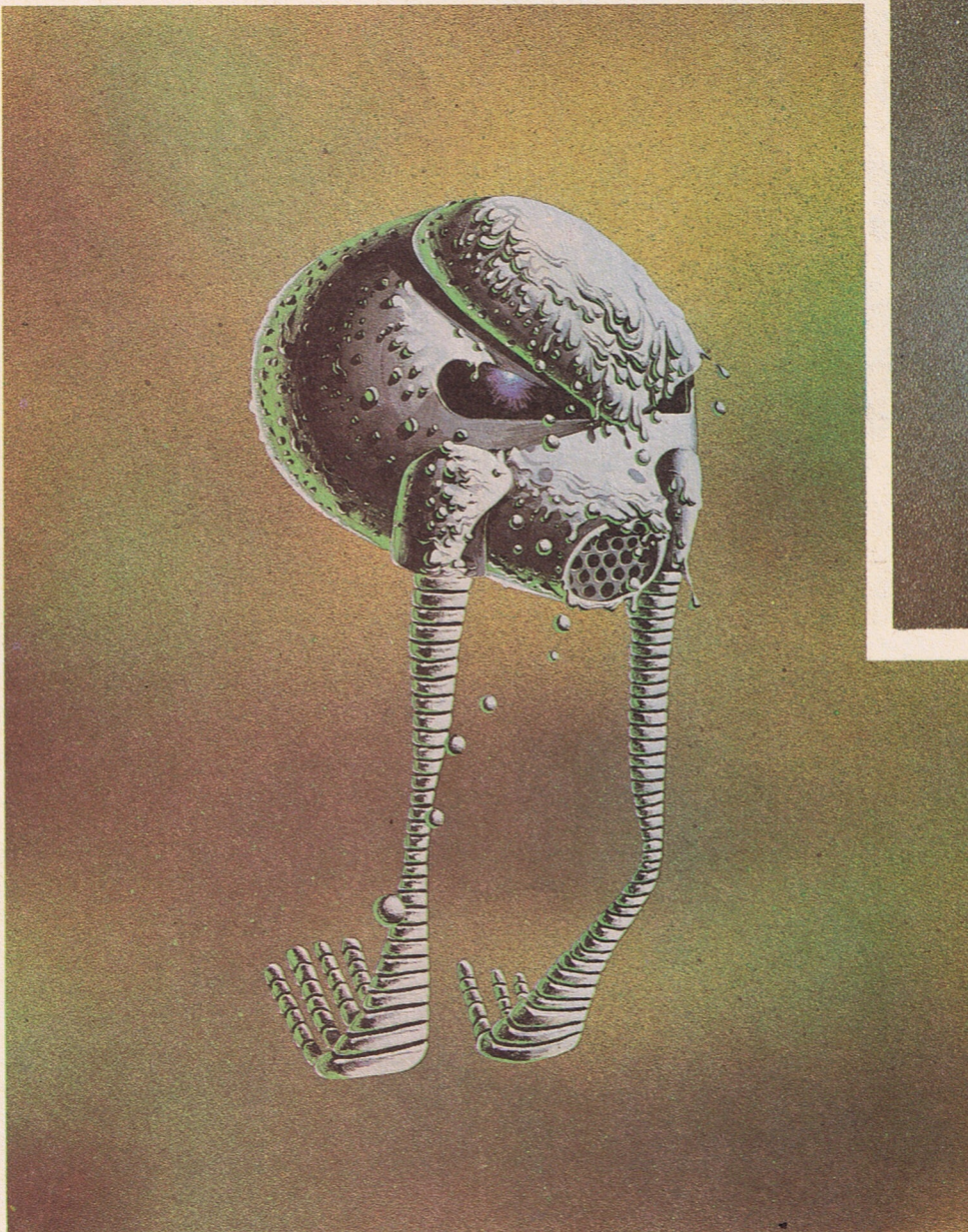
A work like "H.M.S.S. 'Empress of Mars'" for example (pages 60-61), looks like something from *Star Wars* by way of Jules Verne. Page describes it

"Traction Engine & Butterfly Car"—a visualization from Keith Roberts' novel *Pavane*.

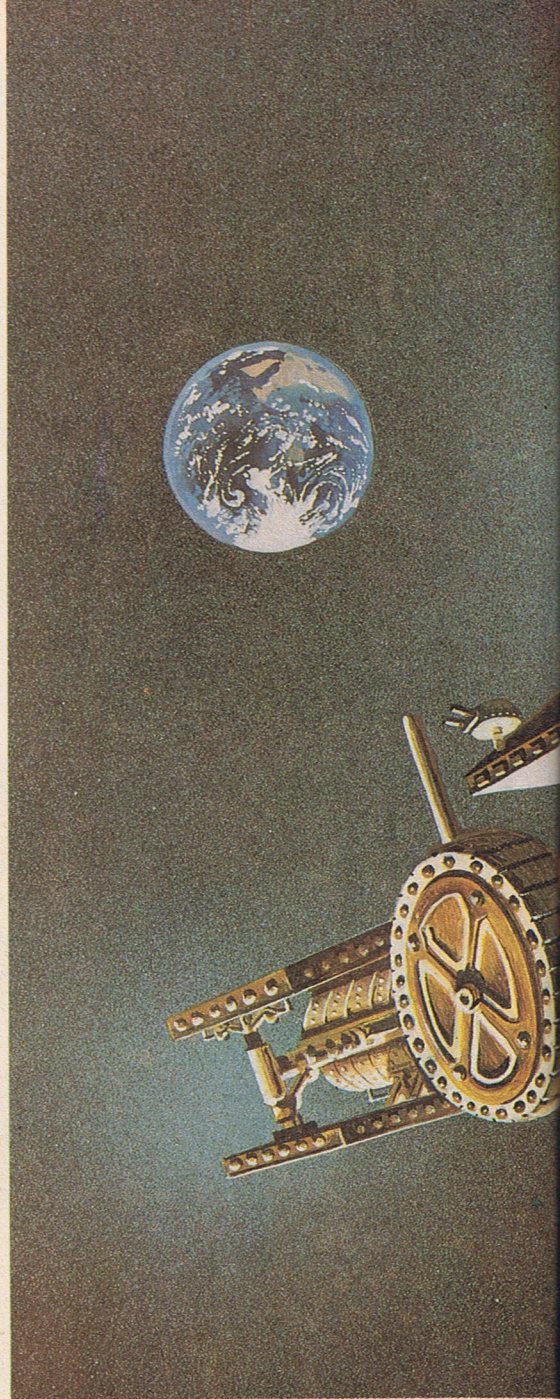




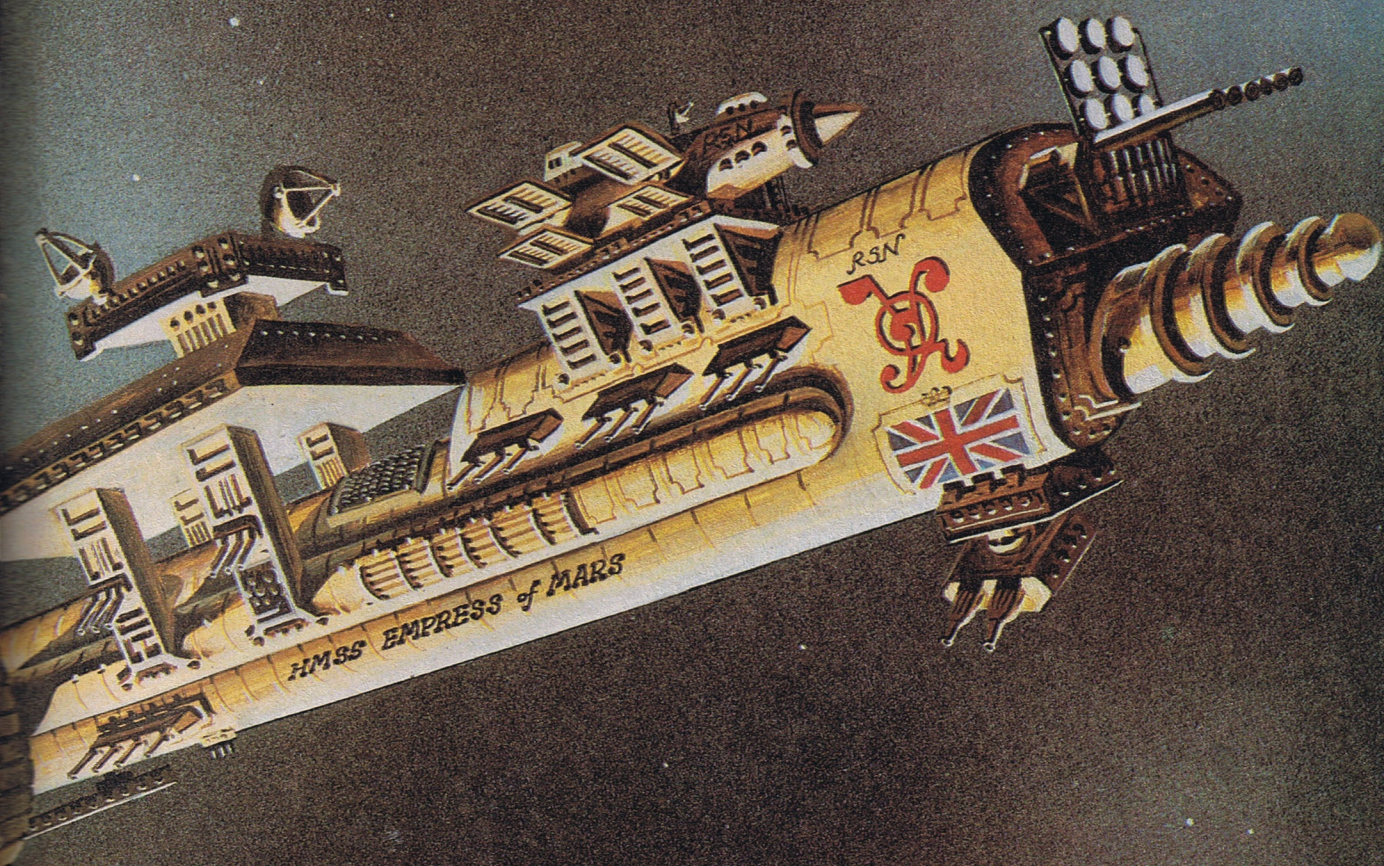
The "Fossilized Space Helmet" was painted after Keith read Joe Haldeman's Novel *The Forever War*, and became intrigued by the graphic descriptions of space battle suits.



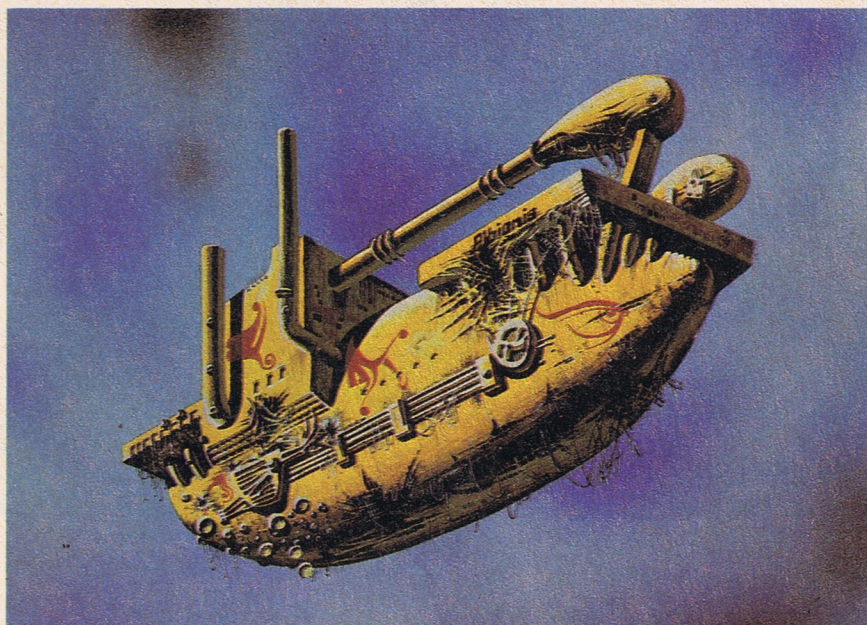
Left: The "Floating Blot" is part organism, part machine, and all menacing. Artist Page explains that it has been trapped in a force field, and is now melting in zero-gee, forming globules as it does so.



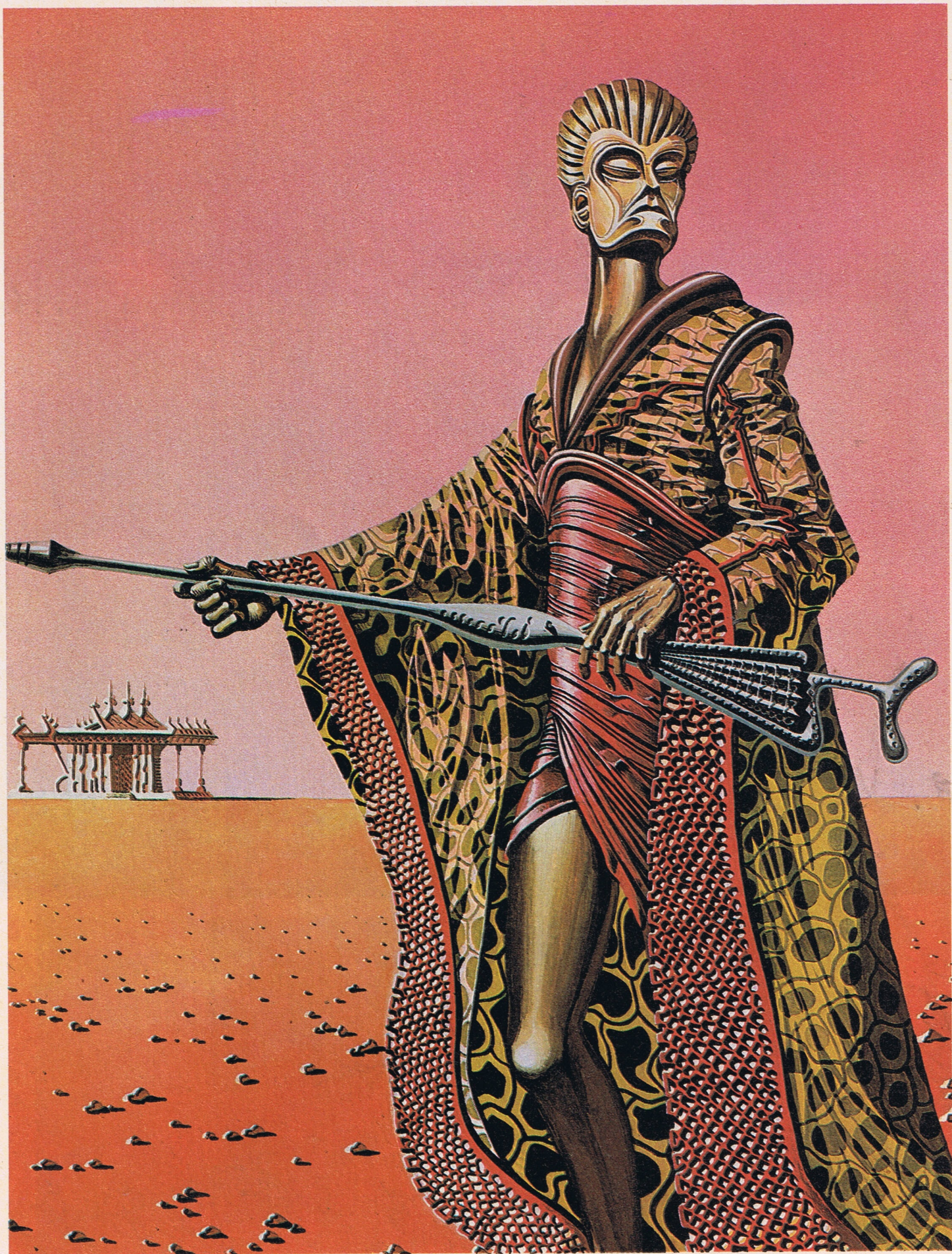
Above: The H.M.S.S. "Empress of Mars," on her way to fight off dissident colonists on behalf of the British Empire. What if they had one of these around in 1776 . . . ?



The civilization which developed this "Derelict Airboat" had devised a simple means of anti-gravity propulsion (by sound waves, perhaps?), but had not invented explosives—hence the crossbow armament.



ART © 1981 KEITH PAGE



ART © 1981 KEITH PAGE

An individualistic English artist blends comic strip excitement, science fictional star ships and ancient British history in order to produce his own unique form of anachronistic space art.

thus: "The stately flagship of Her Majesty Queen Victoria's Royal Space Navy glides out from Earth to quell a rebellion of fractious Martians in the colonies! This is a not-entirely serious piece of speculation on alternative history—what if the Queen had said, 'Mr. Brunel, build me a spaceship,' and he had...."

Another painting in much the same style is the "Traction Engine & Butterfly Car" on page 59. "This is a straightforward visualization of a scene from Keith Roberts' excellent novel *Pavane*," Page explains, "an alternative history saga that begins when the Spanish Armada defeats Drake's fleet. The time is the present, but steam power still rules—internal combustion engines are tiny and require the assistance of huge windsail wings to propel miniature cars."

In addition to adding outdated ideas to futuristic paraphernalia, Keith is equally skilled at taking a technology that doesn't yet exist and making it appear ancient in design. For example, his "Floating Biot" (page 60) is a biological robot which, he says, "appears to have been trapped in a force field, and is now melting in zero-gee, forming globules as it does so." His "Fossilized Space Armour" (page 60) was inspired by the science fiction novel *The Forever War* by Joe Haldeman (who, incidentally, is this issue's Tomorrow author), and depicts an armored space helmet slowly disintegrating in a highly corrosive atmosphere.

Page describes his painting technique as follows: "The paintings are executed mainly in gouache and acrylic. I start with an airbrushed background, then pencil onto this a detailed outline of the rest of the subject. This is then worked on with brushes only, of varying sizes."

As may be seen by the wide variety of vehicles present in his work, Keith is

fascinated by cars, "particularly," he says, "the Italian supercars. In 1974 I won a 'Car of the Future' styling competition, which included a trip to the Lamborghini factory and a drive around the Monza race track. Maybe *one* day I'll own one!"

All these factors are coming together in his latest project, a cartoon strip for children. "It's set in the future," he explains, "but probably owes more to Carl Banks than Chesley Bonestell, and has more than a touch of humor about it, which I think is important. I think the basic idea is quite original, as it combines such diverse items as Morris Dancers, steam engines and starships! Incidentally," he hints broadly, "it would make a rather good basis for a cartoon film."

"Included in this project are a number of basic ideas, one of which is the concept of a mixed technology in the future (you can, in fact, already see this taking shape). In other words, on the one hand you have space travel, robots, advanced computers and the like; while on the other you have very old ideas with a new slant on them: windmill power stations, sailing ships, airships, bicycles. . . .

"I think life in the future will become increasingly decentralized and I think you can already see the beginnings of a *post-industrial* age in Britain—small, specialized businesses, the revival of old crafts. This seems to be quite fitting, really, seeing that we started off the industrial revolution in the first place!"

As for future plans, Keith Page is not adverse to a bit of travel. "Like most artists who have painted anything connected with space, I should, of course, jump at a chance for a trip in a shuttle. I don't think this is very likely for a long while yet, but who knows? There has been quite a lot of talk from the European Space Agency recently about a possible mini-shuttle of their own. . . ." □

This is an illustration for Ray Bradbury's "Silver Locusts," which is one of Keith's favorite stories.

INTERFERON



Scientists using recombinant DNA techniques may soon be able to supply doctors with a new weapon in the war against cancer.

PHOTO: SHELL OIL CO. UNIVERSITY OF TEXAS

By CATHY STONE

Cancer touches virtually every family in the United States. Sooner or later, the call comes bringing the news that a relative has the disease.

There is anger, fear and most of all sadness because to many people, the word cancer means death. And in fact, nearly two-thirds of all cancer victims die of the disease. There is also an accusatory eye turned toward medical researchers. Why, after all these years, is there no cure? Today, the careful reply might be "maybe there is one," but the key word is "maybe."

The source of their cautious optimism is interferon, a naturally-occurring protein that has shown promising results for both cancer and virus infections. However, few clinical trials have been conducted because the drug has been available only in extremely limited quantities and at a very high price—by one estimate, \$22 billion a pound.

When battling infection, interferon becomes an intercellular messenger. It escapes the membrane of the infected cell and sounds a warning to neighboring healthy cells. They respond by pro-

ducing antiviral proteins which prevent an entering virus cell from reproducing, or if it is successful in reproducing, they prevent it from leaving the cell.

How interferon works against cancer is less clear, but it is known that it inhibits the growth of both healthy and abnormal cells by slowing cell division. Though interferon does not kill cancer cells outright, it somehow alters them so they stop reproducing. The substance also appears to sound a general call to arms to the body's immune system.

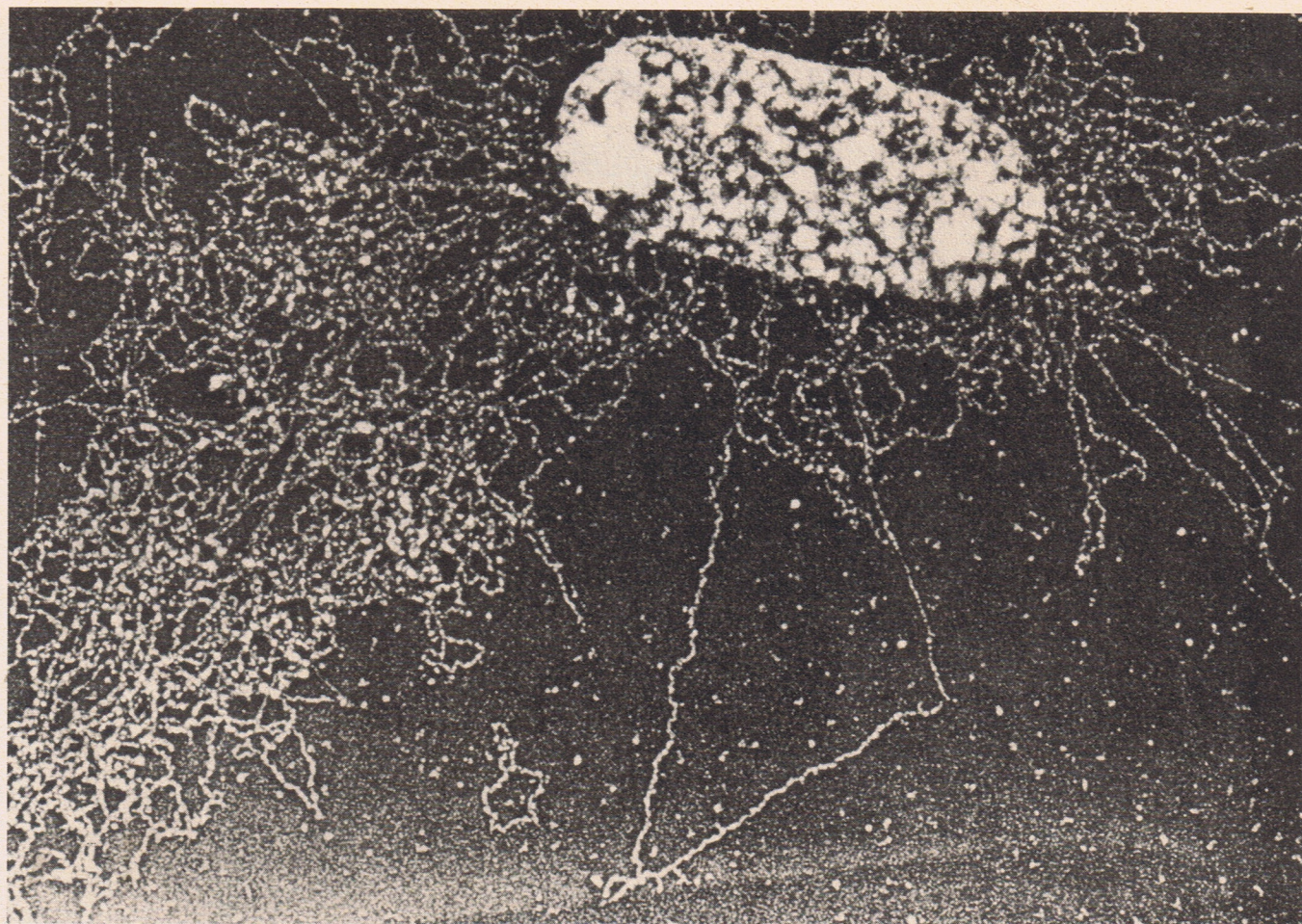
There is still a critically short supply of interferon, but in the past two years, the outlook for future production of the drug has changed dramatically. Scientists using recombinant DNA (gene splicing) techniques have successfully induced bacteria and yeast to produce interferon in relatively large amounts. Prior to this, the method used to produce interferon was one developed through the persistent efforts of Finnish virologist Kari Cantell. Working at the Central Public Health Laboratory in Helsinki, Finland, Cantell induces leukocytes (white blood cells) to produce interferon by infecting them with Sendai virus, a

flu-like virus harmless to humans.

Because interferon is species specific—that is, only human interferon will work in the human body—Cantell's process requires tremendous amounts of blood—65,000 pints to produce only 100 mg. of a highly impure interferon. And though the Finnish lab is the world's largest facility for interferon production, its annual output is only enough to treat 600 patients.

Using Cantell's interferon, scientists continued over the years to pursue their research, despite skepticism voiced by others regarding the drug's potential. Test results from those who persevered impressed the American Cancer Society enough that, in 1978, it purchased \$2 million worth of Cantell's interferon. Since then, it has committed nearly \$7 million to interferon trials, most of which has been spent on obtaining the drug.

The ACS' faith in interferon's potential set off a chain in the drug manufacturing community, an effect boosted in 1979 when the National Cancer Institute announced it would buy \$9 million worth of interferon. In that year, only



The *E. coli* bacteria used in recombinant DNA research. A small circular piece of DNA called a plasmid (top, center) is used for the gene splicing techniques which produce the promising drug interferon.

two companies in the United States were producing interferon. Today, many major drug companies have stepped up their research efforts to assure they get a piece of the interferon pie.

The avalanche of activity in genetically engineering yeast or bacteria to produce interferon has resulted in significant accomplishments toward increasing the supply and reducing the cost. Early results from yeast-produced interferon revealed yields of one million molecules of the substance per yeast cell, much higher than the initial results reported for production from bacteria.

Ron Hitzeman and Frank Hagie, of the San Francisco-based Genentech, Inc., collaborated with University of Washington scientists Benjamin Hall and Gustav Ammerer in the process that joins an interferon gene with a "promotor" in yeast responsible for protein production. Hitzeman describes the relationship as a "cooperation instead of a competition. It worked very well and it worked very quickly." Indeed, Hall sent the promotor to the Genentech scientists last December, and on February 28 they were announcing their first results.

The UW-Genentech announcement came one year after Biogen, S.A., a Swiss firm specializing in recombinant DNA techniques, announced that a team headed by Charles Weissman, University of Zurich, had genetically engineered *E. coli* bacteria to produce interferon. Later, Genentech independently induced *E. coli* bacteria to produce a higher-quality interferon in greater quantities, according to Genentech scientist David Goeddel.

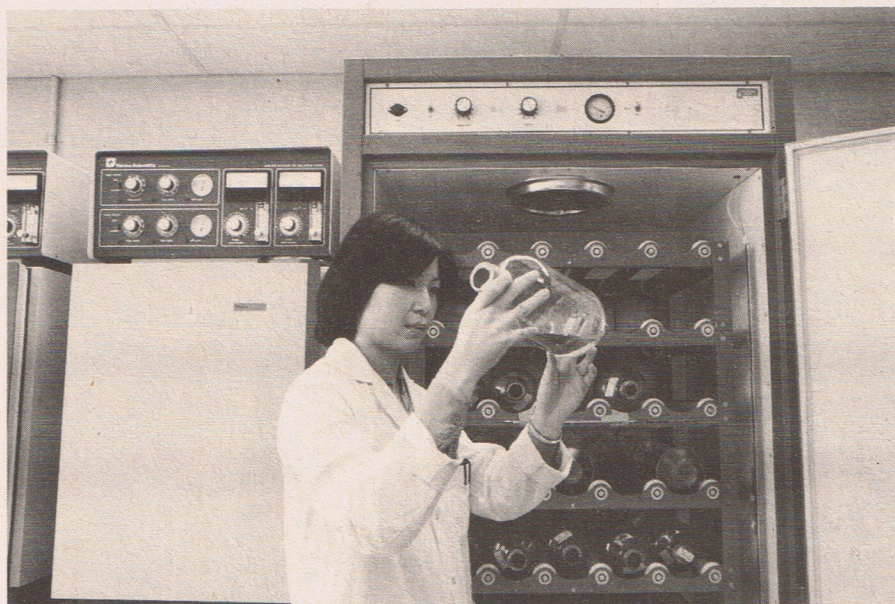
Two companies have since begun production in *E. coli* bacteria while others are investigating alternative production methods. So far, most of the effort has been aimed at producing interferon from naturally occurring leukocytes. However, scientists are also producing fibroblast interferon, made from the connective tissues of the skin and other organs, and researching methods to produce immune interferon, believed to be produced by T lymphocytes, soldier cells that attack invaders and are part of the body's immune system.

Flow Laboratories, McLean, Va., is producing fibroblast interferon cells on beads of sugar, called dextran. It also is

using a technique developed by the Massachusetts Institute of Technology in which interferon-producing cells are grown on the surface of small charged spheres. Other researchers are trying to put interferon production back in the body. Last March, a patent was granted to Timothy H. Cronin and associates at the Pfizer Central Research Laboratory for a process that induces the production of interferon in the body through the use of amines.

Though scientists are trying various techniques, the main emphasis is still on the development of yeast and bacteria interferon factories. "The *E. coli* bacteria is working very well and progress is being made daily," Hitzeman says. "Yeast could very quickly become comparable to *E. coli*, but all the while yeast people are making improvements, so are the *E. coli* researchers."

However, the scientists believe yeast may ultimately have advantages over *E. coli* production. They emphasize that yeast doesn't produce proteins that are toxic to humans, as bacteria does, and yeast is not as easily contaminated during the fermentation process. Yeast also



A technician at New York City's Memorial Hospital examines a sheet of cells growing in a medium for interferon production. The cells are incubated at 37 degrees C.

has more in common with human cells.

"If you look under a microscope at yeast, bacteria and human cells, you will see human and yeast cells look much more alike," Hitzeman says, "and yeast behaves more like human cells." It may automatically attach sugar molecules to interferon which may cause it to function better. In fact, some antitumor activity may be related to the presence of the sugar compound. In addition, Hitzeman says, "a lot is known about yeast and the more you know about a system, the more you can manipulate the system." Yeast also grows in prodigious amounts, and, notes Hall, the medium is cheaper.

Perhaps the greatest advantage is the possibility that yeast can be genetically engineered to not only produce the interferon but secrete it. Purification is the most expensive process in producing synthetic proteins, Hitzeman explains, but if the yeast is made to secrete interferon, it would remove the necessity to break into the cell to get the substance, thus making it easier to purify.

While Genentech continues to refine production in yeast, clinical tests are underway on interferon produced in *E. coli* bacteria by the company in collaboration with Hoffman LaRoche, Inc. The trials, which seek approval of the drug from the Federal Drug Administration, started in January.

"If the clinical trials proceed in a very positive way," says Ken Berkowitz of Hoffman LaRoche, "we're hopeful we will be able to have interferon available in the mid-1980s. We are doing everything we can to move as quickly as we

can." But, he adds, "in an area where you're dealing with a dreaded disease, we're very much concerned that a lot will be made of it before it's proven."

Hall echoes his concern. "One effect of the publicity has been a lot of letters, very poignant and tragic letters, from people with cancer or from people with family members who have cancer. I can see how important it is not to raise false hopes. Interferon could be a gigantic flop."

Though Hitzeman is also cautious, he notes many anticipate the drug will have both antiviral and antitumor action. In some tumors, he says "it's had better results than other treatments in initial testing. That looks promising, plus there is

an added benefit. When large amounts and different types of interferon become available, we may be able to treat cancer with combinations of interferons or combine interferon treatments with conventional treatments."

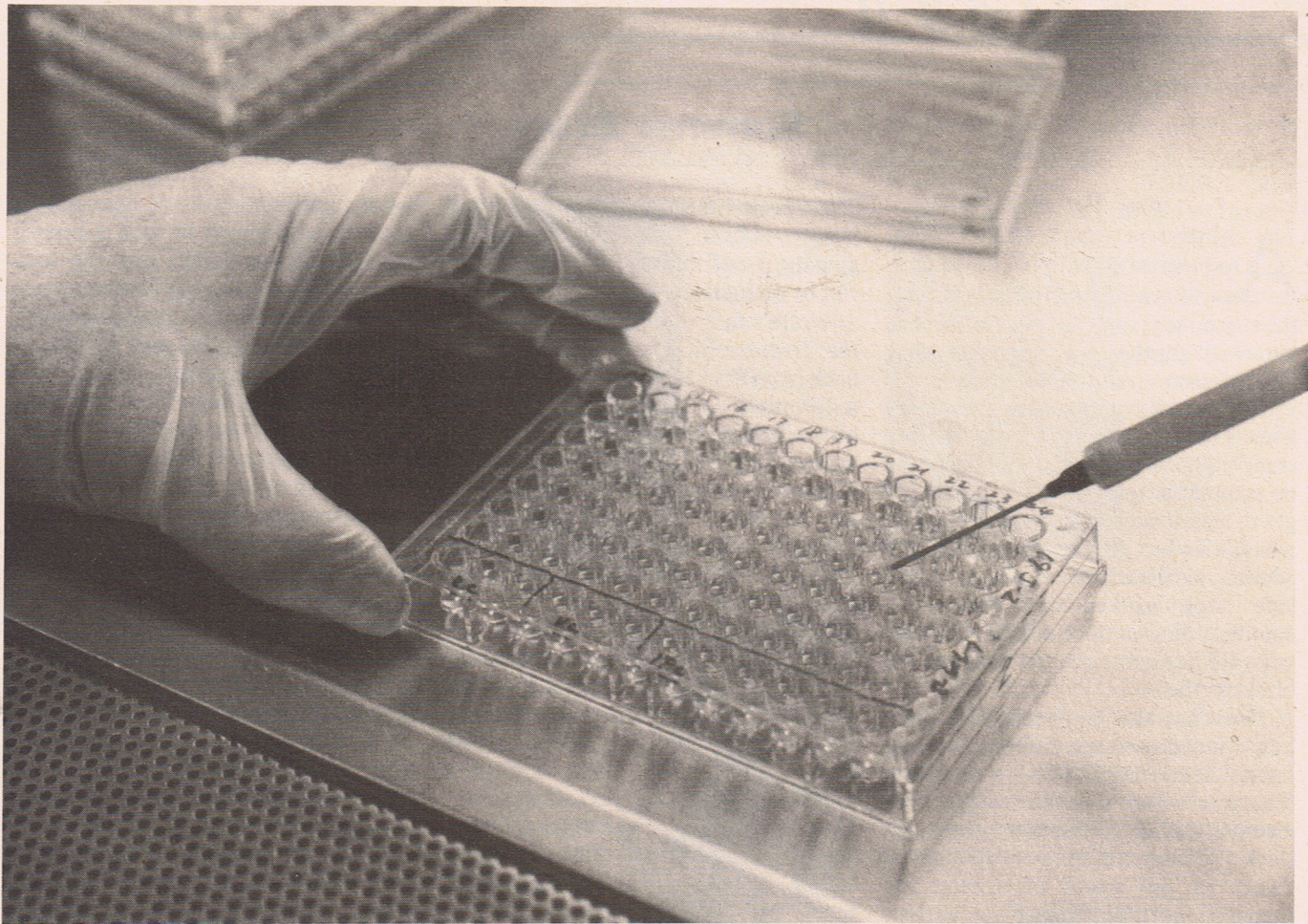
Conventional treatments—radiation and chemotherapy—work best against cancer cells during their active or dividing stages, notes Hall. Interferon, however, seems to be more effective when tumor cells are at rest. Combining the two treatments could offer a continual and two-pronged attack.

So far, no clinical trials have tested the effectiveness of such a combined attack, but early test results on interferon alone suggest it may counter some cancers. Preliminary results from the American Cancer Society trials show 40 percent of those with advanced breast cancer, multiple myeloma and late-stage non-Hodgkins lymphoma have responded. However, only 10 to 15 percent of patients with melanoma (skin cancer) have shown a response. The ACS trials also indicate the side effects, which researchers initially thought might be caused by impurities in the drug, may be due to the interferon itself. ACS patients being treated with a more purified interferon continue to experience hair loss, nausea, lethargy and reduced production of blood cells in the bone marrow.

In other tests, Dr. Thomas C. Merigan Jr., of Stanford University, reported the shrinkage of tumors in four of seven patients with advanced non-Hodgkins lymphoma; Dr. David V. Hibib, Columbia University, reported



The acidity of the interferon growth medium is adjusted weekly by bubbling carbon dioxide gas through the medium. While scientists are cautious about the eventual use of interferon in the treatment of cancer, they are also hopeful.



A technician adds interferon to plates containing cells to which a test virus has been added. The activity of the drug is evaluated under a microscope. The technician can see whether or not the interferon protected the cells from the virus.

marked tumor regression in six women with metastatic breast cancers; and Dr. Jordan Gutterman, M.D., Anderson Hospital, Houston, reported interferon treatments obtained positive results in seven of 17 breast cancer patients, six of 10 myeloma patients and six of 11 patients with lymphoma.

Dr. Hans Strander, treating patients with osteosarcoma at the Karolinska Hospital in Stockholm, Sweden, used interferon after amputation, the usual treatment in the disease. Without followup treatment, the cancer spreads to body organs and kills about 80 percent of its victims within two years. Of the 44 patients Strander treated with interferon, more than half were alive after five years, compared with less than 25 percent of those not treated with the drug.

Equally promising results have been reported in clinical tests using interferon against virus infections. The drug appeared to be a formidable defense against the common cold in tests conducted by Merigan in collaboration with researchers from the British Medical Research Council's common cold unit in Salisbury, England. In that test, 16 vol-

unteers were given an interferon nasal spray one day before and three days after they were exposed to a common cold virus. Another 16 were not sprayed. None of the 16 who had been treated experienced cold symptoms; 13 of the unsprayed did.

Interferon has been used successfully to treat cancer patients suffering from shingles and chicken pox and against various viral infections, including corneal ulcerations and german measles. It has shown promise in the treatment of hepatitis B virus, which some cancer experts regard as the probable cause of hepatoma, a fatal liver tumor.

Hitzeman thinks hepatoma is only one of several cancers caused by viral infections. "More and more indications are that some cancers have origins," he says. Hitzeman speculates that cancer is caused by the invasion of the virus into the DNA of an infected cell and that there is a susceptibility in the DNA of some persons because of low natural interferon levels. If he's right, could interferon actually prevent a virus-caused cancer? And could it prevent cancer in high-risk groups, such as those exposed

to carcinogenic substances or persons with a family history of cancer? These are only a few of the questions yet to be pondered, but regardless of the answers, the research into the production of interferon opens a whole new range of possibilities.

To Hall, the importance of his research has little to do with interferon alone. Instead, it shows yeast cells can be altered through recombinant DNA techniques to produce proteins that could prove to be valuable in both future medical and energy research. "I think using recombinant DNA techniques to make interferon to try to treat cancer is just a first example of many such things—taking the natural disease-resistant proteins as we learn more about them and trying to supplement the body's defenses."

Hitzeman agrees that "the future is in natural substances," and says the pursuit of these goals should not be halted by the concerns voiced over genetics research. "The work is done very carefully," he says, adding, "humans have the potential to better themselves. That's one of the excellent things about life."



Summer Stock

Multiples

Authors and editors just don't seem to be satisfied with one-book contracts nowadays. Every time you turn around, someone or other has launched another epic spanning two, three, four or even five volumes.

There are advantages for everybody here. The author gets to explore more completely the world and the characters he created in volume one. The readers get to stay longer in a world or time of which they've grown fond. And the editors, ah, the editors figure that if the first book worked then they have countless thousands of addicts out there who are guaranteed buyers for *all* the books in the series.

There are also problems with these long-winded exercises and chief among them is "sequelitis." This is a condition that can strike even the most well-meaning author. It causes his prose to go slack as he re- or even re-re explains the design of this world or dissects the predilections of his main characters for the *n*th time. It may cause short episodes to be stretched into major subplots or even full volumes. Sequelitis may even cause, by the series' finale, that certain lack of attention or interest on the part of the editor and/or the author that can reduce a terrific concept to a tragic example of the mundane.

As a random sample of this dread malady, please compare the first volume of José Farmer's Riverworld saga (*To Your Scattered Bodies Go*) with the "climactic" fourth volume (*The Magic Labyrinth*). The first is a tight story that moves you and the characters through an exciting landscape full of weirdness and wonder, but by the fourth volume, there's nothing left but the frenzied action and overlong speeches.

But don't despair! Things can be different and Gene Wolfe's second volume of the Book of the New Sun tetralogy,

The Claw of the Conciliator (\$12.95 in hardcover from Simon and Schuster) is glowing proof that a level of excellence can be maintained.

Wolfe's first volume, *The Shadow of the Torturer* (now available in paperback from Pocket, \$2.50), introduced us to Severian, an apprentice in the Order of the Seekers for Truth and Penitence, and an Earth (Urth) farther removed in time and strangeness than most we've seen before.

By the end of *Shadow*, Severian has been exiled by his order, received an enigmatic (and perhaps magical) talisman called the Claw of the Conciliator, begun practicing his trade (torture and execution properly done), become obsessed with several fascinating women and begun moving toward a princely destiny we can only guess at.

The Claw of the Conciliator begins by revealing what Severian's destiny may be but the story becomes quite oblique. Despite a ceremony in which he receives a portion of Thecla's (the woman prisoner whose death brought about his exile) body along with many of her memories, Severian seems sure that he will meet her again. Again we see him practice his trade, but now his exile and the strange claw/talisman seem less a burden than his curiosity, which is always leaving him a victim of dire circumstances. Plus, the Claw is beginning to fitfully show Severian that it possesses formidable powers.

These things, though, are only fore-shadowings of the true object of the young apprentice's quest. As Severian carries out a mission for Vodalus, leader of the rebellion against the Autarch, we realize that the apprentice is well on his way to a mastery of both his craft and the wisdom necessary for a truly heroic destiny.

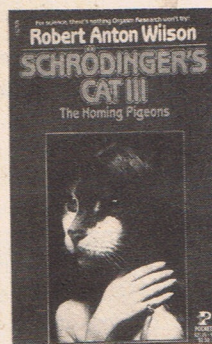
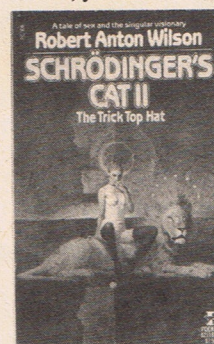
These are only the broad strokes of Wolfe's work. He is assembling a mas-

terfully imaginative work here full of clues and deceptions in such a beautifully complicated skein that the only things you can count on are your own fascination and surprise as you watch him mix myth, fantasy and intrigue to create the well-told story.

Wolfe is so confident of the compelling nature of his tale that both volumes have ended with the same challenge—"If you wish to walk no farther with me, reader, I do not blame you. It is no easy road." It may not be easy since you do have to pay attention to get all there is to get out of these pages, but you can no more stop here than eat just one of those excessively advertised potato chips. Simon and Schuster, how long do we have to wait for the next one?

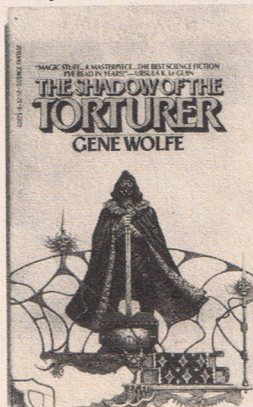
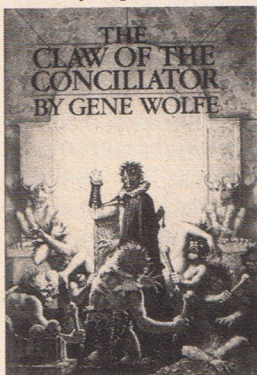
R.A.W. Data

Robert Anton Wilson has figured out a unique approach to solving the problem of sequelitis in Schrodinger's Cat trilogy. He's told what *may* be the same story from the perspective of three (or more, you never can really tell where you



are or when) universes. So, *Schrodinger's Cat II, The Trick Top Hat* and *Schrodinger's Cat III, The Homing Pigeons* (both \$2.50 in paperback from Pocket Books) are remarkably alike for two completely different books.

The Trick Top Hat and *The Homing Pigeons* both posit the end of death and taxes. They both give clear indications that imagination is the key to change and that one person *can* make a difference. They seem to have the same cast of characters, but a character that's a man in one book may be a woman in another and he/she was probably back in volume one. Some of the characters are cognizant of the fact that they're characters in a book, but others are just



as certain that Mr. Wilson (sometimes Ms.) is a character in their book.

Confused yet? If not, you should be, since an appreciation of chaos is a necessary first step on the road to personal evolution. These books really are preparatory textbooks for evolutionary mammals ready to get off the planet and enter free space. Whether or not they work is really immaterial, since getting ready is such fun.

But to jump back to conventional reviewing strategies there are a few facts that probably should be revealed. First, there is a story in there somewhere. It does run from book to book, but the books don't necessarily have to be read in any particular order. Second, there is a satisfactory climax. Third, Wilson (or whatever person or conspiracy wrote this) puts his cast of characters through every possible permutation—sexual, social, political, conspiratorial—and in the process teaches the readers more about the infinite possibilities of multiple universes than any multi-dimensional space opera I've ever read.

This is a frantic, funny, scatological tale and the real trick here is that you are suddenly aware that you and the author are working together to create this little story universe. That's always true—reader and writer are to a degree co-creators—but the difference here is that the author is inciting you to go on and do the same thing in the real world. So, try the books. Try changing your mind. Try making a little magic in the world. You may discover that you like it a lot.

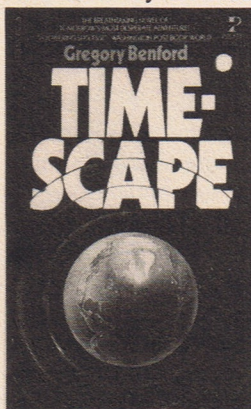
Cheap Thrills

When you start reviewing books, they start arriving in the mail. Suddenly it gets real easy to forget that these things cost money and nowadays a lot of them simply cost *too much money*. Well, paperbacks (though they're not cheap any more) are still the best antidote to the high price of the hardcovers and recently several of last year's best books arrived in paperback.

The official "best book" of 1980 (according to the SFWA) is Gregory Benford's Nebula-award-winning *Timescape* (\$2.50 in paperback from Pocket).

Timescape shows us two scientists trying to communicate through the barriers of time, bureaucratic red tape, their colleagues' disbelief and a sheer lack of funding that would tax even the very best

of research fellows. This story shows two times—the 1960s and the 1990s—connected by an inconstant stream of



tachyons as these two men try to change the past to improve the future.

Benford's subject, the vagaries of time, is nothing new to SF readers, but his method is. There is a social and scientific realism operating here that is all too often missing in the genre. This is a strong, mature work by one of the field's best, and though it was no surprise that this book won the Nebula, it was a pleasure to see Benford's coming of age rewarded.

Another of the books on the Nebula ballot was Joan Vinge's *The Snow Queen* (\$3.25 in paperback from Dell). Ms. Vinge combines a galactic computer with human terminals, immortality for sale, a queen who's the ultimate in cor-



ruption and an innocent young woman's quest for love. The result is a riveting SF epic.

Arienrhod is the Winter Queen of Tiamat, and her rule has lasted 150 years. Now, she wants to hold onto her power and defy the forces of Summer and the Change. Here, you'll find a consummate piece of world making, full of action and astonishing loveliness.

Earlier I mentioned that Philip Jose Farmer has been a victim of that dread malady sequelitis. Well, sequelitis or not, you pretty much have to buy *The Magic Labyrinth* (\$2.75 in paperback from Berkley) because it has most of the answers to the questions that the first three books in the series raised—and anyway, who can resist going back to the River?

The book has problems in that it reads

like the editor was in such a hurry to get it out that it simply never got looked at.



There are pointlessly overlong and overwritten battle scenes that contrast with situations where major characters (Mark Twain among them) die offstage or simply drop out of sight.

Some explanations are even muddled, but despite all this niggling, if you started down the River with Farmer and friends, you'll probably want this book. And well you should. Even when he's not at the top of his game, Farmer is good and the Riverworld is one of the most amazing creations in the history of the genre—the book is worth the price if only to get a glimpse of what's been waiting at the end of the River.

Hope Fiend

If you're tired of tales of imminent cataclysm, economic disaster and the end of the world as we know it, let Gerald K. O'Neill (who, as author of *The High Frontier* and premier space guru, should need no introduction here) wash away your worries with *2081—A Hopeful View of the Human Future* (\$13.95 in hardcover from Simon and Schuster).

O'Neill's program for the human race breaks down into four parts: an essay on

the art of foretelling the future ("The Art of Prophecy"), a primer on where change is going to happen ("The Drivers of Change"), a look at the world of tomorrow ("Life in 2081") and a look at the long shots ("Wild Cards").

The first division catalogs the successes and shortfalls of the prophets of yore—Wells, Clarke, Haldane, Orwell,

(continued on page 74)

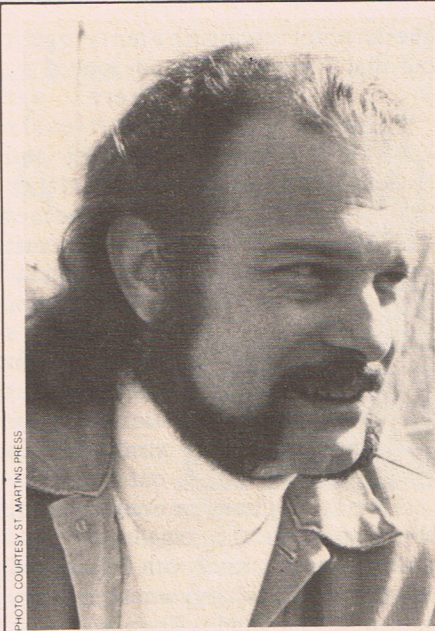


PHOTO COURTESY ST. MARTIN'S PRESS

Joe Haldeman's unique program for the revision of the American political system is typical of his highly individualistic manner of looking at the world. Born in 1943, Haldeman first came to public attention with his novel The Forever War, a science fictional look at a militaristic future which drew both on his background in physics and astronomy, and on his experiences as a combat engineer in Vietnam. The Forever War won Haldeman the Nebula and Hugo awards, and he followed it up with such acclaimed SF works as Mindbridge and All My Sins Remembered, plus two Star Trek novels. His latest novel, Worlds-A Novel of the Near Future, has recently been published by Viking Press, and is the first volume of a projected trilogy. Joe Haldeman presently resides in Florida.

A Prescription for Utopia

Science fiction is amazingly popular all over the world. My own bookshelf is filled with versions of works that I think I wrote—at least sometimes I think I can recognize my name on the spine—translated into exotic languages like Dutch. The explanation for the international, trans-cultural popularity of science fiction is quite simple: The one thing that all modern cultures have in common is the velocity and ubiquity of *change*. So much that was true yesterday seems no longer true today; even less will be true tomorrow. Science fiction is a uniquely appropriate form of literature for today because it accepts this phenomenon as a routine axiom.

(First footnote: I don't claim this will always be so. Within our lifetimes we may see change grind to a halt, the human condition undergoing a fundamental transformation, either to a stable utopia or to a never-ending desperate contest for individual survival. In either case, I'll be out of a job.)

Patrice Duvic interviewed me a couple of years ago for a French magazine. He came to the predictable question, "How would you describe your politics?" and when I answered "anarchist," his eyebrows rose a considerable distance. Well, anarchism is a more specific animal in French politics than it is in American, and I actually used the term inaccurately—I would settle for no

politics, rather than no government.

It's not too startling an observation to note that humankind seems collectively to have painted itself into a corner, and the basic problem that all of us share is whether we are going to live long enough for the paint to dry—or whether, to stretch the metaphor to its limit, we are going to walk out of the corner prematurely, and make an awful mess. Or whether we might find a way to fly. That's what I want to talk about.

The proposition that I would like to explore is that politics itself, no matter what flavor, is a moribund and dangerous institution, and must be replaced. Science fiction writers have a sort of Jeremiah complex—it's temptingly easy to wave your arms about and shout, "My God, if this goes on, look what's going to happen!" without offering any really useful alternative. My aim here is to keep my arms at my side and, perhaps at the risk of not raising much adrenaline, take a sober look at how we painted this floor and how we might fly over it.

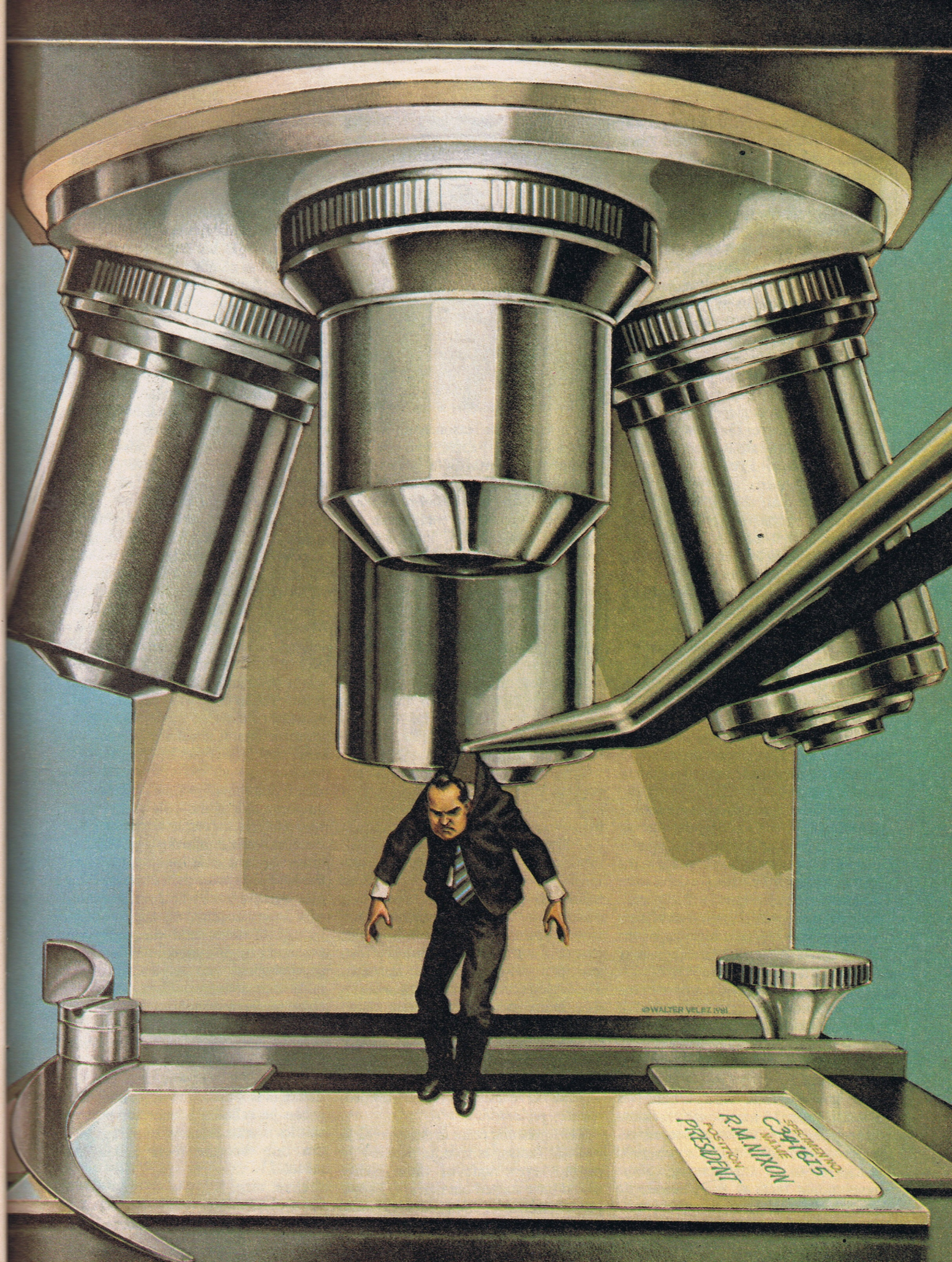
The political cartoonist's stereotype of an anarchist, a wild-eyed bearded loon in a black cape, brandishing a sputtering bomb, dates back to World War I but is tragically relevant today—with people who don't *call* themselves anarchists making political non-statements with actions that murder scores or hundreds of people who didn't volunteer to

be part of a political demonstration. That's not the brand of anarchy I'm espousing, of course; my kind doesn't require a single bomb or bullet, and most people won't even realize it's happening until long after it's an established fact. You can even argue that in some countries it has already begun.

Let me make it clear that my argument is not against government as an abstraction. Certainly there are aspects of human activity that are best handled collectively; certainly there must be a central authority to serve us. My argument is with the selection procedures that virtually guarantee that this authority will wind up in the hands of people who lack the emotional and intellectual equipment to administer it properly. I mean "selection procedures" in a Darwinian sense, not in the routine specifics of being voted into or appointed to office, or buying your way into it or being born of the right family. Political success in any system is usually a reward for virtues that turn into vices once a person is in office: stubbornness, single-mindedness, egocentricity, driving ambition.

This is spectacularly true in American politics, and I suspect it has been more or less true from the Pharaohs to the Roman Senate to the Aztec oligarchy to the Soviet Politburo. People who derive emotional satisfaction from exercising power over others are precisely the wrong people to be given that power—yet they are generally the only ones who persist in the game of politics long enough to attain positions of influence.

The historian Arthur Schlesinger Sr. pointed out the curious irony that dominates modern American politics. Two hundred years ago America was a collection of agrarian colonies with less than one one-hundredth of the population we have today—yet in a very few years, in response to a political situation that today seems not intolerable, those colonies produced men the likes of Adams, Franklin, Jefferson, Paine and Washington—energetic and original political thinkers who changed the course of history forever. The rhetorical question is why, with a hundred times the population, with 200 years of experience, with compulsory education and nearly universal literacy, why can't we today come up with just a few people of equal stature? Schlesinger answered his own question, and the answer is disturbing. In the 18th century, in the



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SPECIMEN NO. C-34162'S NAME R.M. NIXON POSITION PRESIDENT

American colonies, a brilliant person had very little choice of career. There was no academic establishment, no real opportunity for recognition in the arts or sciences. These men turned to politics because it was the only game in town. The depressing part of that observation is its modern reversal: Today the world presents a dazzling variety of opportunities for the expression of genius. Not many people of real ability will choose politics, because there are so many cleaner professions around. This is caused by the selection procedures mentioned earlier, and it also perpetuates it.

The net result in America is that you have a large and stupefyingly complex society being run for the most part by a bunch of second-rate lawyers with the gift of rhetoric. Even if they were thoroughly honest, and there's little evidence for that, they would still approach our problems from the wrong directions: That of the lawyer, who searches for precedent and reinforces it, or that of the rhetorician, who values eloquence over analysis, simplifying problems so that they can be handled by the application of slogans.

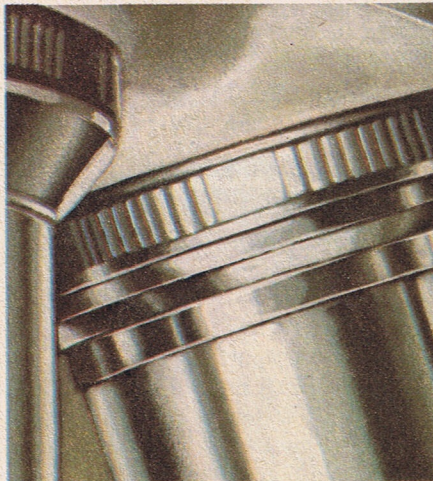
(Second footnote: Television's effect on the voting population does add some variety, by boosting into office people whose main qualification is the personality they project on the tube. This is why we have the spectacle of what is arguably the most important office in the world being filled by an out-of-work cowboy actor.)

At the risk of sounding chauvinistic, I would assert that a similarly debilitating selection procedure cripples the government of the Soviet Union. To rise in the Party, it seems from here, you have to be ambitious and tenacious yet intellectually timid and very careful to do what is expected of you. To be a member of the Politburo, it seems, you have to be over 70 and paranoid about the West.

That takes care of about a third of the world (actually, it may take care of *all* of us, sooner or later)—and much of the rest is run by a dismaying gang of puppets and party hacks, generals and ayatollahs.

So how are we to extricate ourselves from this mess? Three possible avenues are revolution, evolution and secession.

Revolution doesn't have a very good track record in this century. Some revolutions, such as the Chinese, do seem to have resulted in better conditions for the population affected. Most



have not, and one reason again is selection procedure: People who are well equipped to overthrow a government are not usually competent to set up a new government and administer it. Besides, revolutions generally entail such excesses as assassination, firing squads, even the extermination of whole classes of people. We would like to avoid that so long as alternatives exist.

We'll get to science fiction eventually, but first let's spend a moment considering fantasy: the possibility that present forms of government might evolve away from corruption and stupidity. The probability that this will happen is vanishingly small, because Lord Acton's dictum—that power corrupts and absolute power corrupts absolutely—is true most of the time. In some systems, perhaps even the American system, it might be theoretically possible to reform the government from the bottom up. It could be what we call a "grass roots" movement, with people who are genuinely concerned, who have clean hands and pure motives, taking over government at the community level (which might not be difficult if it were part of a well-publicized general effort) and then slowly percolating upwards. The reason this is a fantasy, of course, is that many or most of these clean-handed, purely motivated men and women would be wolves in sheeps' clothing. When they got into positions of real power, we would find that they were just as venal and corrupt as the people they replaced.

The important point to this exercise in political fantasy is to note that few or perhaps even none of those people would have started out corrupt. People go into politics for complicated personal reasons, sometimes with a genuine

desire to reform things, sometimes simply to be admired, sometimes because they need a job, but very often to fulfill unconscious psychological needs. This is the dangerous territory, because often those needs are pathological, and this is where the science fiction comes in.

Hitler would have been harmless if he'd stuck to painting houses and landscapes; Nixon could have fulfilled himself as a used-car salesman. Suppose there were some way, for instance, to take a drop of blood from each potential candidate and analyze it—watch out for that guy; he's got a Napoleon chromosome—and eliminate from consideration people who are seeking office for pathological reasons. No such precise test will ever be possible, of course, but we do have various psychological procedures that can at least reveal extreme aberrations.

I asked a friend who is a psychiatrist whether he believed that psychological tests were reliable enough to spot ahead of time people who would be dangerous if given political power. He believed they were, and although he might be accused of being biased in favor of his own profession, he did offer an anecdote in support of the claim. He had a friend who was a psychiatrist in Israel at the time Adolf Eichmann was captured and brought to trial. As an experiment, he gave Eichmann a battery of standard tests, and sent copies of the results to psychologists all over the world—not identifying the subject; just asking what do you make of this fellow? Everyone who analyzed the results wrote back that the man was a dangerous psychotic.

An extreme case, admittedly, but I think it points in the right direction. Suppose that everyone who desired political office were required to take a similar battery of tests, and the tests were evaluated by an anonymous board of psychologists, and anyone they had misgivings about would be denied the right to be a candidate. There is a possibility that we would lose many potentially brilliant leaders, but I submit that that is a reasonable exchange for the certainty that we wouldn't get any Eichmanns. Furthermore, the science, if it can be called a science, of psychometrics is in its infancy. In the future it can only become more subtle and reliable.

Here, then, is my loose prescription for a utopia. Any reasonably efficient administrative system would be all right,

so long as it incorporated guarantees of individual liberty. Administrators would be elected by popular vote, but the only people allowed to run for office would be those who had been approved by a board of psychologists. This board would be anonymous and unpaid, and service on the board would be compulsory, as jury duty is in the United States: Any person licensed to practice psychiatry or psychology could be called into service. The board would be chosen at random and its membership would be constantly changing. Once elected, administrators would be required periodically to retake the tests—because power does corrupt.

Aha, you say, but a person who was clever enough could falsify the tests; make himself out to be a paragon of virtue when actually he was a creature of low cunning. My psychiatrist didn't think so. Lying is one form of behavior these tests are especially good at detecting. He suggested that if the results of the tests were ambiguous, the board would ask that the candidate allow himself to be interviewed under the influence of a strong hypnotic, such as sodium pentothal (or *Mort Subite*).

Surely I don't need to add that people who qualified for the testing board would automatically be barred from seeking public office. You don't see many psychiatrists in public life anyhow. Perhaps they know something that politicians don't.

Another way to modernize government would be the appropriate use of communications and computer technology. Both Belgium and the United States have a lower house, the Chamber of Representatives and the House of Representatives, whose membership reflects the population distribution of the country. This is a logical idea so long as the official's decisions are in accord with the wishes of the people he represents, but that often isn't the case. A lot of Representatives have pretty shabby records, their voting patterns reflecting patronage and bribery rather than a response to the needs of their regions.

I suggest that the lower house is an anachronism that could be replaced by a computer, directly in contact with the electorate via the telephone system. Once each week, say, issues of local and national importance could be presented and debated in newspapers and on television, after which each voter could

register his opinion (voters without telephones could use a central facility, at the public library or community hall.)

An idealist might extend this idea of electronic democracy to also eliminate our Senates, but I don't think it would be practical to do away with a corps of professionals whose job is to administer our collective concerns. That would presuppose each individual having the intelligence, information, time and motivation to carefully study the issues and make the right decision for himself, and sufficient altruism always to vote against his own interests for the common good. If that were a description of the human species then we wouldn't need government at all.

(Last footnote: There's always the possibility that the biologists will change all this, poking around in our DNA until every human being has the intelligence of an Einstein and the soul of a Schweitzer, and centuries of productive life. Some form of true anarchy would be appropriate then.)



The aim of this combination of electronic democracy and rational selection would be to eliminate, or at least minimize, the role of politics in government. It doesn't seem likely that any existing political system would want to incorporate these changes, if only because that would put most of the politicians out on the street, looking for jobs. This is why I offer the third alternative: secession.

I suppose there are a few places in the world where you could find an island or a few acres of land, declare yourself independent, and set up a rational government. Technically, a couple of places do exist—Hay-on-Wye in Wales and Hutt River Province in Australia—but they are sarcasms rather than true

political experiments; they make a certain amount of money printing stamps and granting dukedoms. More seriously, the history of the United States describes dozens of small experiments like New Harmony, the Oneida Colony and the village of Equity—anti-state settlements that tried to exist independently of the American political structure. They were tolerated because they were small, and most of them did not survive beyond the deaths of their founders. The Mormon Church is an exception, but it eventually became thoroughly integrated into the surrounding political system.

But you don't really want an island or a few acres. If you annoyed your neighbors, or simply became more prosperous than them, they would step in and take over.

My modest proposal is that we secede from Earth. Assuming the nuclear powers allow us to survive into the 21st century, it's quite possible that space travel will become inexpensive enough to allow the construction of permanent settlements in space. Being science fiction readers, most of you are probably familiar with suggestions that have recently been made in this direction, such as Gerard O'Neill's concept of "the High Frontier." My hope is that it may be possible to export people without exporting politics.

I don't think it's absurd to start thinking along these lines now, even though space settlements seem a remote and, to some, an impossible dream. *Now* is the time to act, before the political stakes seems very high. The United Nations managed to enact a treaty forbidding the presence, in orbit, of weapons of mass destruction. Every potentially spacefaring nation signed that treaty, because not signing it would have been a significant indictment of their political aims. It's time for a similar treaty, one that guarantees self-determination for orbital communities. A similar sort of coercion—not to be publicly embarrassed over a rather trivial issue—might force such a treaty to be passed.

In the words of the Soviet visionary Konstantin Tsiolkovsky, "Earth is the cradle of mankind—but you can't stay in the cradle forever." He said that more than 50 years ago. It looks as if our choice may come down to leaving this cradle or dying in it. If we leave, we should be wise enough to leave behind the childhood disease of politics. ▮

(continued from page 69)

Verne, et. al—pointing up the fact that where the gentlemen most often fell short was in underestimating the real differences that the discoveries of their own time could make.

With that in mind, O'Neill proceeds to list what he considers crucial discoveries of our day to build a base for his own extrapolation. "The Drivers of Change" include computers, automation, new energy sources, communication and space colonies (did you really think O'Neill would leave them out?), and this is an excellent source for anyone wanting to be optimistic about the future.


Next comes what should be the good stuff—"Life in 2081." What the reader finds is a collection of all the latest drawing-board dreams, all presented in a series of travelogues that would hang even an average SF writer up to dry.

We see Earth of 2081 through the eyes of Eric C. Rawson, a visitor to the planet from a space colony out beyond Pluto. The gadgets Eric uses range from supersonic underground trains to swinging

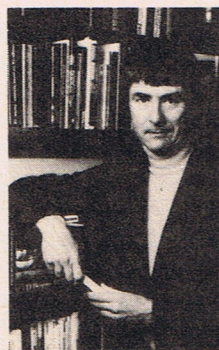
The gadgets Eric uses range from supersonic underground trains to hypersonic jets.

hypersonic jets, cybernetic houses to domed cities; and everywhere he turns there are computers, robots and viewscreens. It's all very pretty, but the people he meets and the general tenor of the world he lives in make it look like the bland have inherited Earth.

The book's finale—"Wild Cards"—returns the book to what seems to work best, a gadget catalog with no assumption that everybody will subscribe strictly to white middle-class virtues. Here, we get a peek into possible breakthroughs like longevity, faster-than-light travel and elevators to orbit. This chapter doesn't attempt to tell any story, it just turns the technology loose and lets you figure out what that will mean to you or your descendants.

O'Neill is a good teacher as long as he doesn't try to make a story—complete with characters and dialogue—out of it. So, if you want some snappy answers for the dystopians on your block, here's the place to look. Just treat the book like a catalog of solutions (which it is) and I guarantee you'll have a good time. 

next issue



THE HIGH FRONTIER

The high priest of space colonization is back, this time with some wise words about our near future, with his new book *2081: A Hopeful View of the Human Future*. Aside from his fervent belief in space colonies, O'Neill explores the immediate elements steering us toward tomorrow: computers, automation, mass communications. Next issue, FUTURE LIFE ventures to Princeton for a talk with this optimistic future-teller. He'll talk about the high frontier, how his plans to go into space are progressing and other aspects that make O'Neill a modern-day pioneer.



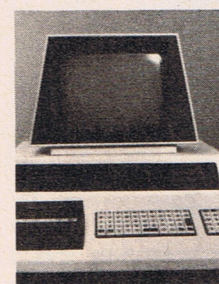
A RUSSIAN SPACE COLONY?

Yes, says James Oberg, the prominent Soviet space program watcher in his article "Things to Come." According to Oberg, the Russians are at this moment preparing to place a modular space station in orbit within the next few years. Based on the past decade's experiments that kept cosmonauts in orbital space stations up to a record 185 days, the Soviets, unlike the Americans, are concentrating on using space for orbital platforms to serve multiple purposes. Along with this, Oberg offers other fascinating predictions concerning the Russian space program.



NIKOLA TESLA

He was the black sheep of the Electronic Revolution—unlike his contemporaries Edison, Bell and Marconi—but Nikola Tesla is now being recognized by many in the sciences as a genius of the first degree. In our next issue, we'll have an intriguing biography of this forgotten inventor, along with some interesting details on just why his achievements have gone unnoticed by the public.



THE SOFTWARE ARE COMING!

Will our present mode of education survive the home computer? Author John Lautsch thinks not. In a fascinating 21st-century scenario he will take FUTURE LIFE readers into what he feels is the future of education—which includes the total bankruptcy of the university system, all learning done at home, and teachers rated according to popularity, much as movie stars are!

PLUS

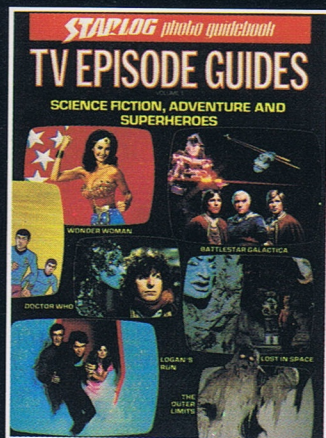
Jack Williamson addresses the often-conflicting worlds that separate scientists from humanists in a thought-provoking Tomorrow column....Ellison delves into the seamy world of knife-kill flicks—among his various targets....a look at a new type of theater performance, using lasers instead of actors....and we'll have our regular offerings of book reviews, databank news, reports from Earth Control and Alternate Space, and some out-of-this-world art and photography.

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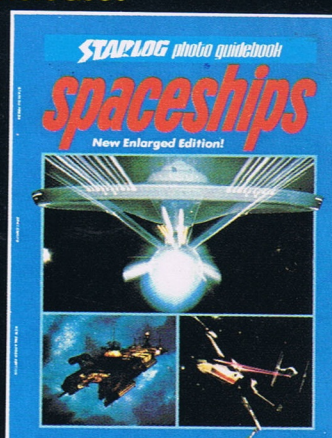
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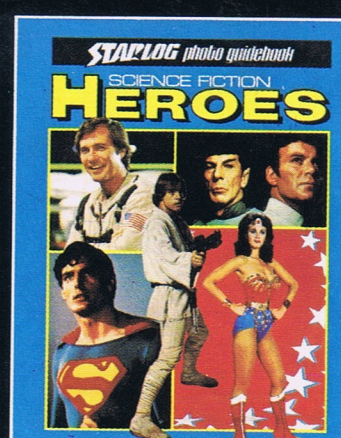
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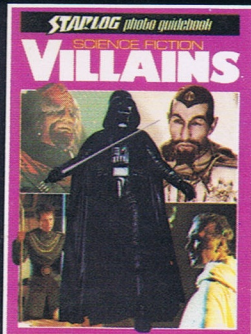


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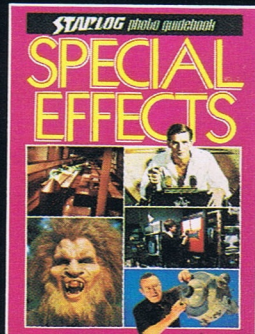
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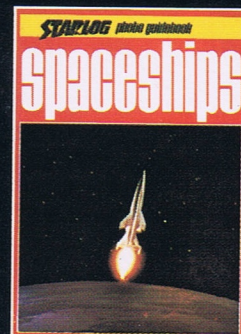
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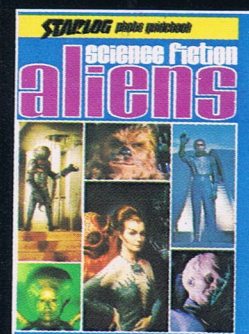
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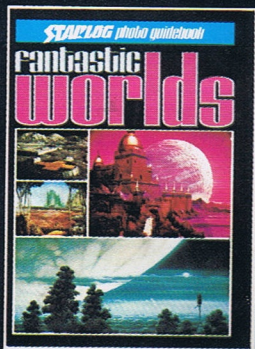
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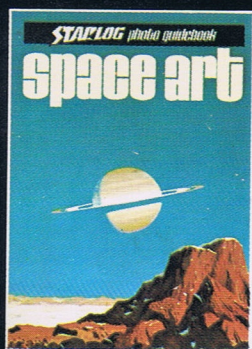
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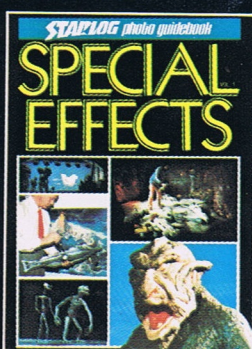
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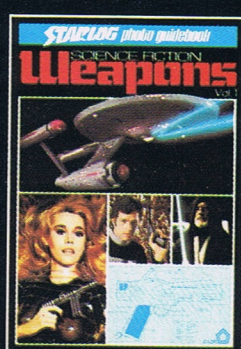
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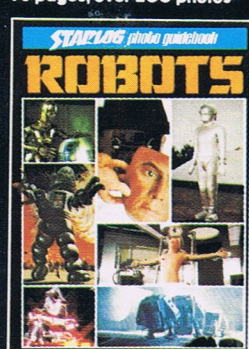
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